Textile World

ESTABLISHED 1868

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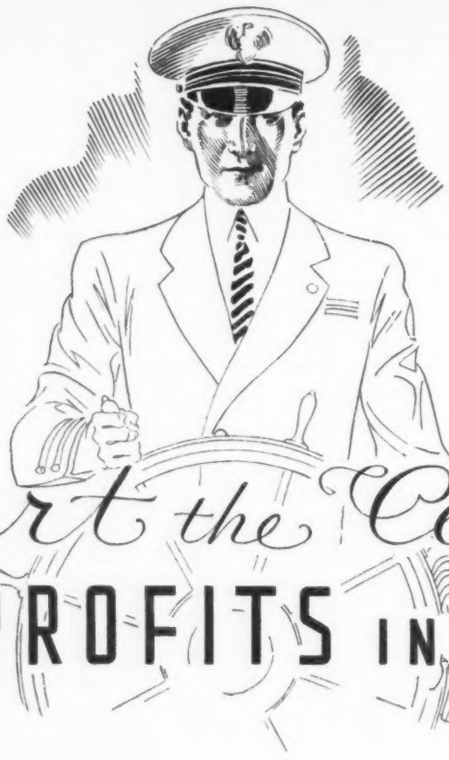

Chart the Course TO PROFITS IN 1934

BUSINESS SHIPS that sail the commercial seas will require most skillful piloting this year—to follow the course to *profitable* sales, ignoring the siren call of volume-at-any-price. ◆ ◆ "Skippers" are most carefully scrutinizing their *sources of supply.* They realize the great importance of these in offering their trade consistently high quality, in giving value, in maintaining the service that holds old customers and gains new ones. ◆ ◆ INDUSTRIAL supplies products of uniformly high excellence to mills which stress *quality* rather than price alone. With these products goes a policy of utmost cooperation and assistance in their use through technical service and in their distribution through effective, "custom-built" trade promotion. ◆ ◆ Possibly INDUSTRIAL can help you, too, chart your course.

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January, 1934

Textile World

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Editor: DOUGLAS G. WOOLF

*"This Year, the Program's Going to Be Different"**

IN recent years, we have approached the writing of a New Year editorial with a dogged feeling of relief. "Well that's that," we sighed in private and exclaimed in print. At least, we argued, the next year could not be any worse.

But it usually was.

This year, our sigh is one of considerable satisfaction.

Let's look at the textile record for 1933:

1. Mill activity some 25% over that of 1932, and about the same as, or a little higher than, the average or "normal" year for the last decade.

2. Profits, even though slight, for many mills for the first time in years.

3. Machinery established to promulgate *and enforce* programs for balancing production and demand.

4. Machinery established to curb wage and price snipers.

5. Machinery established to curb unfair trade practices.

Is it any wonder that textile men are displaying a new feeling of confidence; that despite the national debate on this and that policy, most manufacturers feel they are going places?

▼

Just where are they going?

We estimate actual volume of textile business (in pounds, not dollars) in 1934 will be somewhat greater than that of 1932 but not equal to that of 1933—say, roughly, half-way between the two. If this is correct, it will be a respectable, but not a boom, year so far as volume is concerned.

But that does not appeal to us as the most vitally important consideration. We are honestly of the opinion that the textile industry has been gradually working itself into a position where it will be able to make a profit on any reasonable volume of business.

That opinion is based largely upon the three last items in the "record" cited above. Given a balanced production, and protection against unfair competition, the efficient, well-managed company and its workers will prosper despite reasonable fluctuations in the volume curve.

▼

Efficient . . . well-managed.

That about tells the story.

We have no note of seasonal cheer to offer to the weak sisters. We cannot see much light ahead for the opportunist who has produced goods with inadequate and antiquated plant and equipment facilities, and who has relied upon wage and price degeneration, and other sharp practices, for his share of the current business.

We do see light ahead for the alert, conscientious manufacturer who in the past has seen the profit possibilities of efficient management and equipment converted, by those unfair practices, into loss realities.

To him and his brothers—and after all they represent the bulk of our audience—we offer New Year greetings and felicitations.

And our tongue is not in our cheek.

*Acknowledgment, and a Happy New Year, to Ed Wynn.

Textile Institute Suggestion

MEETS MIXED REACTION, WITH MANY FAVORING INTERMEDIATE STEP

THE suggestion of an American Textile Institute, made in these columns last month, met, as might be expected, a mixed reception in the industry. The opinions received to date divide themselves into three approximately equal classifications. One-third of the men heard from are definitely in favor of the idea; one-third are just as definitely opposed; and one-third are doubtful, but mostly in favor of an intermediate step as a compromise. In both the first and second classes there are some men who, while either favoring or opposing the idea, indicate a leaning toward such a compromise.

A thought recurring quite frequently throughout the opinions is to the effect that the plan is sound in theory but not feasible in practice. Many hold that the suggestion is premature; that the time is not ripe for such action.

The alternate plans proposed by a very considerable proportion of the men heard from were surprisingly similar in type. Roughly, they entailed the formation of a national council composed of representatives of the various existing associations, rather than the establishment of a national institute which would supersede those organizations. This council, it was held, could consider those problems common to all branches of the industry, and attempt to develop a unanimity of thought on them. Many believed that subsequently such a council would become the nucleus of a more closely knit national institute.

In adjacent columns are printed extracts from some of the comments received. These are representative of the differing shades of opinion expressed. It should be stated that a definite attempt was made by the editor to secure these reactions. The men selected for this sampling canvass were mostly those who had been or still were engaged in some type of associational effort, since it was realized that their opinions would be of practical importance in the further development of such a plan.

H. M. Ashby, vice-president, F. C. Huyck & Sons, Albany, N. Y.; and member, Wool Textile Industry Committee—I am afraid that I cannot endorse the idea with very much enthusiasm. . . . I am strongly of the belief that a very powerful woolen group, embracing practically everything in the woolen industry, should be formulated and perpetuated, but personally I believe that is as far as we should go—at least, for some time.

Arthur Besse, president, National Association of Wool Manufacturers—I do not think that cotton, wool, silk and rayon manufacture can be brought under a single association. Problems in the different branches are quite dissimilar and often the interests of the different groups are in conflict. . . . I believe that there are, however, many problems which the textile groups have in common. To my mind, however, it would seem perhaps better at this time to try to work along lines of joint committees instead of attempting to form a single organization which would, I believe, make the small unit feel that they had less representation and less understanding of their problems than ever and that they were unheard in the clamor of a large organization.

John H. Brine, president, Rollins Hosiery Mills, Inc., Des Moines, Ia., and member Hosiery Code Authority—Personally, I am under the impression that there are entirely too many trade organizations. If the forming of an organization such as you suggest would result in the elimination of some of the trade organizations now functioning, it would undoubtedly prove very helpful to the textile industry as a whole. . . . I have no doubt that an organization such as you suggest, if properly managed, would be of great benefit to the different branches of the industry.

Millard D. Brown, president, Continental Mills, Inc., Philadelphia; and member, Wool Textile Industry Committee—The textile trade is not ready for the kind of super-organization that you have suggested in your editorial. It will be some time before it will be able to use such large machinery. The National Association of Wool Manufacturers of itself is a very complicated organization, and to my mind it will take several years of experimenting before that organization, within itself, will be able to know how to function for the best interests of the country, the trade itself, and the workers.

J. Ebert Butterworth, H. W. Butterworth & Sons Co., Philadelphia; and member, Textile Machinery Code Authority—I think that this is a very brilliant suggestion and one that should meet with hearty favor by anybody in the textile industry who takes the trouble to think a little bit about it. As you so clearly stated, the situation today is very mixed up, and there is no central clearing house through which the overlapping troubles of the various branches can be straightened out.

A. H. Carr, president, Durham (N. C.) Hosiery Mills; and member, Hosiery Code Authority—If you mean the consolidation of cotton mills and hosiery mills into one institute, I doubt if I could go along with you. However, it does seem to me that all branches of the textile trade, particularly the cotton textile trade, should be included within one institute.

Roy A. Cheney, secretary, Underwear Institute—I agree with the principle but I do not agree with your plan. I think that there should be a Supreme Council, such as I have long advocated, first, for the knitting end of the textile business and then one covering all textiles. It will be absolutely impractical to combine all the textiles into one association at the present time. I think we should start creeping before we try to walk.

Howard E. Coffin, chairman, Southeastern Cottons, Inc., New York—You are opening up a very big subject and one that may very well have the prayerful consideration of the textile industry as a whole. It seems fairly certain that industry—and business in general, for that matter—will be largely administered from Washington for a considerable period to come. . . . The industries which are best organized to, first, constructively formulate policies and, second, to effectively bring pressure to bear upon Washington for their acceptance will find themselves in the "most favored" category. That part of the textile industry represented by the Institute has shown good leadership in its work under the NRA, the adoption and administration of its code, etc. Added prestige could unquestionably be achieved through bringing about a closer affiliation of all other organizations in the field.

Earl Constantine, managing director, National Association of Hosiery Manufacturers—My impression is that, operat-

ing under codes, we need less centralization than we did before the codes. Or, to put it in another way, I believe that under codes we need, in a sense, more decentralization. . . . What I think we do need, however, is some established system of conferences between the executives of textile associations, so that we may have closer cooperation and a means for exchange of values.

Stuart W. Cramer, president, Cramerton (N. C.) Mills, Inc.; and member, Cotton Textile Industry Committee—My experience is that even with the cotton interests all included we are gradually getting a most unwieldy organization. I very much fear that an attempt to include other branches would only add to our difficulties.

D. F. Edwards, president, Saco-Lowell Shops, Boston, Mass.; and member, Textile Machinery Code Authority—Your editorial on the advisability of forming an American Textile Institute to comprise all branches of the textile industry contains a stimulating idea, but I must say my own mind is not clear as to the wisdom of undertaking to put it into effect at this time. Each branch of the textile industry is now functioning through its own code authority and is in the throes of working out the application and administration of its code provisions. In the main, of course, these provisions are the same as in the basic cotton textile code. The problems of application, however, and questions of trade pratice differ among the various groups. . . . On the other hand, I recognize that there would be many advantages and economies resulting from a consolidation such as you suggested.

Gov. O. Max Gardner, advisor to National Rayon Weavers Association and Cotton-Textile Institute—I have read your editorial very carefully and I am heartily in sympathy with the general philosophy of your reasoning. It may be, as you intimate, that you are a little too far in advance of the procession, but if our present governmental policies continue I am satisfied that we are moving in your direction. In fact, 1933 witnessed substantial progress toward the goal you set.

Paolino Gerli, E. Gerli & Co., New York; and past president, Silk Association of America—I am very, very much in favor of the idea. In fact, may I be permitted to say that it has been a pet item almost for two years. There is just one more phase of this situation which should appeal to the textile trade, and that is that the industry as a whole (wool, cotton, rayon and silk) has never been able to get its full picture before the administration in Washington from its political side, unless we except possibly the efforts at tariff protection. Even from the public standpoint there has not been the proper reaction to the textile industry and that may be due perhaps to the fact that the textile field has been divided into smaller groups, each representing its own fiber. I certainly do believe that the formation of a Textile Institute would help to correct these two situations besides bringing about decided improvements from many other standpoints.

James A. Goldsmith, past president, Silk Association of America—I was instantly impressed with the fact that your suggestion describes in the abstract the concrete example offered by the Federated Textile Industries, Inc., successor to the Silk Association of America, Inc The change of name of our organization after a continuous existence in operation as a prominent trade association in this country for over 60 years, was occasioned by the fact that practically we had found the need of a federated type of government, due to the number of individual branches of our industry who were anxious to avail themselves of the experienced personnel maintained by the association, both from the viewpoint of saving expenses, as you mention, and also from the even more important aspect of greater coordination of effort among those with a common interest. . . . Aside from the actual structure of the organization, I question whether, at the present time, it will be at all possible for one organization to handle the affairs of the textile industry.

Dean Hill, executive secretary, Throwsters Research Institute—I heartily approve of the underlying thought that is in your mind. Just how this is to be worked out remains to be seen but I do see a need right now of a federated board made up of representatives from, as an example, members of the Cotton-Textile Institute, Silk Association, Dyers Institute, Throwsters Research Institute, National Association of Hosiery Manufacturers, etc. This federated board could meet at stated intervals to draw up rules and regulations covering matters that are of mutual interest to all or any of these associations.

Thomas B. Hill, Greyco Sales Corp., New York; and past-president, Silk Association of America—To be perfectly frank with you I cannot at this moment say that I agree with you on developing an institute for all interests manufacturing different kinds of textiles. I think the matter is worthy of study and investigating, which, in my opinion, will be necessary before a conclusion will be reached. Your article, at least, stimulates thought and consideration.

Luther H. Hodges, co-manager, the Carolina Cotton & Woolen Mills Co., Spray, N. C.—I agree thoroughly in principle but I think that you have quite a long way to go before we can combine all the various bodies. . . . I believe that we should go along at the present with our various groups and work toward the end that you suggest.

Ernest N. Hood, treasurer, Naumkeag Steam Cotton Co., and president, National Association of Cotton Manufacturers: Frankly, the variety of interests already comprehended in our cotton textile code provides problems which are extremely difficult and to bring in other branches of the textile industries such as silks, woolens and linens would still further complicate the situation. On the whole I am inclined to think we had better carry on with separate organizations until such time as these are running smoothly and then a survey of the situation may suggest further steps but I do not think that time has yet come.

Parkman D. Howe, treasurer, Universal Winding Co., Boston; and member, Textile Machinery Code Authority—Without going into the matter in great detail I think your suggestion is very good.

W. O. Jelleme, Pacific Mills, New York—Somebody had to say it out in public soon, and I am glad that you have done it. Certainly there is a growing need for one industry organization in textiles, instead of a large number of separate groups. Following such a practice would only be carrying through to a logical conclusion what has already begun in the codes in which, because of the interlocking, it became absolutely necessary to handle various divisions as branches of the textile industry code.

Chas. F. H. Johnson, president, Botany Worsted Mills, Passaic, N. J.—I think that any attempt at this time to scramble the textiles all into one organization will not accomplish good but will work inestimable damage. There are so many divisions of thought, and so many real differences between the textiles that they would be an extremely unhappy family and would do themselves more harm than any good that would be accomplished by being together. . . . I am speaking for the present and the immediate future when I say what I do about it. There are many things which we will do eventually, but which we cannot do now.

Fred A. Kattermann, treasurer, Kattermann & Mitchell Co., Paterson, N. J.; and member, Silk Code Authority—As a member of the Silk Code Authority, sitting in on their weekly meetings, the volume of complaints, regulations, and questions to be answered are so voluminous, that I hardly think a Textile Institute for the whole textile industry could possibly function in a satisfactory manner. . . . I believe, however, that it would be very desirable for the various textile codes to try to coordinate their work among themselves and that perhaps each division should be represented in a combined meeting, or organization. Sooner or later there must be a meeting of minds in the textile

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WE are deeply indebted to the men quoted on this page, and to others not quoted, who responded to our request for their opinions on the idea of an American Textile Institute.

Frankly, we were surprised at the number who favored either this plan or an alternate one. A flexibility of mind was revealed which helps to explain the progress being made in the industry, and promises much for the future.

We believe that the compromise suggestion of a national council, made up of representatives of existing associations, is a constructive one—and we recommend it to the industry for further study and action. Naturally, it would be our hope that such an organization would be merely an intermediate step and would lead eventually to the formation of the Institute we have in mind. Whether it did or not, however, it in itself would be an extremely progressive move, and would tend to eliminate at least some of the obstacles impeding the progress of the textile industry as a whole.

—*Editor*

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industry on the fundamental problems confronting us all.

Henry P. Kendall, president, The Kendall Co. and member of Secretary Roper's Business & Planning Advisory Committee—I think your suggestion as contained in your editorial entitled "For a Textile Institute" is perfectly sound. I do not know that I can add anything more to that statement. I believe this is the time when business has an opportunity of regulating itself and organizing for that purpose. I hope they will take the opportunity.

C. S. Kincaid, president, Magnet Mills, Inc., Clinton, Tenn.; and member, Hosiery Code Authority—Broadly speaking, and from a theoretical standpoint, your plan offers unlimited possibilities, but from a practical point of view it would seem that the textile industries have about all they can digest for the time being. An institution set up and functioning as described in your editorial, would be Utopian.

H. Lauten, Prince Lauten Corp., New York; and president, Textile Fabrics Association—I am sorry but I cannot agree with your thought. A Textile Institute such as you have in mind will not, in my opinion, do what you seem to think it will do. The various parts of the textile field using the fiber as a basis are highly competitive, and each branch has special conditions and individual ramifications and usages that cannot be dealt with by a super institution but by definite special institutions that specialize in the respective fiber.

Austin T. Levy, treasurer, Stillwater Worsted Mills, Harrisville, R. I.—As you are probably aware, I am not in favor of consolidations. Theoretically they seem to be all right; practically they present enormous operating difficulties, which increase in much faster ratio than the increase in size which the consolidations bring about. In the last analysis, every institution or other human effort is the shadow of a man, and as the size of the enterprise increases it becomes extremely difficult to find men who cast sufficient shadow. . . . Instead of bigness I am interested in flexibility, adaptability and first-hand knowledge of human appreciation.

Harold R. Lhowe, managing director, National Knitted Outerwear Association—I am not in favor of your organization of an American Textile Institute. . . . Would it not be better to put your influence back of the thought which has been gaining ground in Washington and elsewhere that the Code Authorities in textile industries operating under approved codes form a coordinating council? Such council, it seems to me, could not only consider the matters you visualize for the American Textile Institute, but would have the power to put them into effect.

Leavelle McCampbell, McCampbell & Co., Inc., New York; and past-president, Association of Cotton Textile Merchants —I do not believe it is practical to put these associations together at this time. At present they are working together in the best of harmony, and there are many subjects which lend themselves to individual decision.

W. M. McLaurine, secretary, The American Cotton Manufacturers Association, Charlotte, N. C.—What you have suggested in this editorial is what is happening now in the cotton textile industry, due to the fact that so many of the various branches of the industry are coming in under Code No. 1. This is a beautiful theory and is not impossible to execute. However, I wonder if we have worked with each other sufficiently long to be able to co-operate fully.

Lionel J. Noah, president, American Woolen Co., New York—It has always seemed to me, as an individual and in no way speaking for our industry, that such a consolidation as you suggest might prove of great value to the textile industry as a whole. Of course, there are very many differences between the various branches of this industry but fundamentally they have very many of the same problems, and the strength that would come from unity would, undoubtedly, be a valuable asset in the future determination of the industry. While, therefore, there might be many objections and difficulties with such a plan, there is no doubt in my mind that it is fundamentally sound and would be helpful in solving our future problems.

Daniel Rheinauer, president, New York Knitting Mills, Inc.; and past-president, National Knitted Outerwear Association—The Institute recommended, undoubtedly has many merits, but evidently you do not appreciate the difference between the knitted outerwear industry and the weaving. . . . Your thought is a good one, but it is my impression that if it was started with the underwear, hosiery and weaving plants, and after this is in operation, start on knitted outerwear, you would be more apt to be successful.

S. A. Salvage, president, The Viscose Co., New York—My reaction is that if in the future the various trade associations in the textile field get to the position where they really are running their various branches, a general association might be formed to advantage, but until the policies of the present trade associations are more clearly defined and in working order, it would seem a little early to try to do anything about a general trade association.

Sidney H. Scheuer, Scheuer & Co., New York—I feel that your suggestion is premature. . . . Technically, your position is entirely sound; practically, it seems to me that we must work out the manifold problems involved in what we have already set up, the ultimate objective being to coordinate and combine all these activities in one textile institute. . . . My chief dissent would be based on the time factor.

Ewald H. Schniewind, Susquehanna Silk Mills, New York; and member, Silk Code Authority—My reaction to your proposal is negative. . . . The centralized mouthpiece that you mention might be of political advantage and I could imagine that a centralized textile council would eventually become desirable but I do not favor a textile institute because I feel that the individual institutes of the exceedingly numerous smaller divisions of the textile trades would be snowed under in regard to proper attention and forcefulness of representation.

Albert L. Scott, Lockwood Greene Engineers, Inc., New York, and president, National Association of Finishers of Textile Fabrics—Your editorial entitled "For a Textile Institute" has a great deal to commend it. . . . I see no reason why your plan for one group to represent the textile industry as a whole, should not at an appropriate time be taken up for discussion, so that the advantages and disadvantages of such a large grouping could be carefully weighed.

Ames Stevens, vice-president, U. S. Bunting Co., Lowell, Mass.; and member, Wool Textile Industry Committee—It seems to me that eventually such a setup would be desirable. . . . As soon as the various sections of the textile industry have their own organizations running a little more smoothly, it is possible that an institute such as you suggest would have a very useful place in the general scheme.

E. Kent Swift, president, Whitin Machine Works; and member, Textile Machinery Code Authority—From the theoretical point of view I can see where it would be a fine thing to bring together all the elements of the textile industry in one comprehensive organization. Practically, I do not think it is possible. . . . I think the idea is fine, but I doubt whether, with such different groupings of personality and problems of merchandising, etc., you can bring the whole industry together in one organization which would be at all effective.

George W. Taylor, University of Pennsylvania and member Hosiery Code Authority—You are, of course, pioneering as usual, and I think your proposal will certainly be developed eventually, but hardly now. . . . I do feel that an informal exchange of ideas with respect to development of code procedures could be of inestimable benefit to each of the associations. . . . How about a conference of the Code Authority representatives in the textile industries for a preliminary exchange of ideas?

Walter L. Toy, vice-president, Scott & Williams, Inc., New York; and member, Knitting Machinery Code Authority—Frankly, I am on the fence on the proposition. I suppose a Textile Institute might do some good but it certainly could not take the place of the sectional associations which are now in existence and which, of course, have been strengthened in the last three months due to the NRA activity. I am afraid there are too many conflicting interests to ever make one association serve the whole.

George R. Urquhart, president, Manville Jenckes Corp., Manville, R. I.—Your plan is so sound and sensible, that I do not see how anybody can quarrel with the purpose which you have in mind, and I imagine that most of the objections you will get will be more or less a rehearsal of reasons why it cannot be done. It would seem to me that the formation of an institute such as you propose, to cover the entire textile industry, must require a considerable time to bring about, and that the first step should be a consolidation of the various associations which are now active in the different branches.

The Editor Says:

"IS it not possible that the textile industry has been operating on a faulty psychology?" we inquired in these columns in December, 1929. "Even under the present conditions of excessive productive capacity, and under the handicap of a decentralized group of mills, is it not reasonable to believe that textile manufacturers could ask (and stick to) a fair price for their product —and that the public would pay it?"

It was a leading question. The answer, as we saw it, was: Yes.

Today, after four more Decembers have passed by, we would answer it in the same way.

'TISN'T SO

AND yet, just last month we read this in the columns of one of our contemporaries:

"Driving by one of the big worsted mills in Massachusetts, on any working day now, one will see 300 or 400 automobiles in and near the mill yard. As a matter of fact the people of the United States cannot afford to buy textile products manufactured by mill operatives who do not walk to work."

Honestly, does anybody really believe that? Is it true? Have we retrogressed so far from our much-vaunted economic and social position that we must admit that the man or woman who makes the cloth for our backs is not entitled to a Ford—or even a Rolls Royce, if he can earn it honestly?

We can remember the time when a bath-tub in a mill-village house was resented. However, it wasn't resented by the buyer of textile products, but by a few antiquarians who still believed the world was divided into two classes: those who were entitled to more than mere sustenance, and those who weren't.

Today, Mr. Shirt-Buyer will not resent an automobile in a mill yard, any more than he then resented a bath-tub in a mill house.

Ordinarily, we're a peaceful sort of person. But that item made us see red. What cooled us down was this thought: 'Tisn't so.

AND WE GOT IT

DURING code-making days, we heard a lot of talk about the need for production quotas. Criticism of the textile codes was voiced on the basis that they did not provide such arbitrary means of regulating output.

And yet, so flexible were the provisions of those codes that within six months three divisions of the industry went to Washington to ask for (and receive) permission to curtail production. Far more important still, they laid the groundwork for current adjustment within the several groups of each of those divisions.

Division Administrator Whiteside paid a well-warranted tribute when he stated publicly in New York last month:

"We have recent conspicuous examples of the highest type of self-government in the voluntary action of the cotton textile, the hosiery, and the silk textile industries in requesting the sanction of the Government to modify the working hours in their respective industries. . . . When the facts were presented, labor without hesitation agreed to a reduction of hours with no increase in the hourly wage rate. . . . That is self-government both on the part of industry and on the part of labor, and this incident will have very far-reaching effects upon the success of the N.I.R.A."

As time goes on, it becomes more and more apparent that we did not need elaborate and rigid codes at the start. What we did need—and what we got in the textile codes—was adequate machinery for intelligent adjustment to changing conditions.

30-HOUR WEEK

ARE we going to have a 30-hour week?

This question has been asked us repeatedly in recent weeks. It implies, of course, a 30-hour week with the hourly rate adjusted so that the weekly pay will be equal to that now prevailing for a 40-hour week.

Our answer has been: No—at least, not yet.

The evidence presented at the textile code hearings convinced the NRA officials that neither the industry nor its employees could profit by such a radical step. The facts presented then obtain today.

There will be a drive for the 30-hour week, both in and out of Congress. We believe it will be mostly fireworks—and just about as productive of any real results.

As for the future, it is anybody's guess. General Johnson has stated publicly that he believes the 30-hour week will come some day but that it is not warranted today. That is his guess—and even his enemies admit he is rather an astute observer.

Meanwhile, there is nothing to worry about if, as we believe, Mr. Whiteside was correct when he stated that labor had come to realize that there could be no wages unless employers made money with which to pay them. Organized labor, in its public utterances, may not always have seemed to grasp this simple truth, but we believe the man or woman at the machine or counter has.

Referring again to a previous item on this page, no one begrudges—or should begrudge—a wage-earner his Ford, or even his Rolls Royce, if honestly earned. Just now, however, there cannot be many honest Rolls Royces in the mill yard.

MODERNIZATION GAINING

MILL news items coming over our desks from correspondents reflect a marked increase in the tendency to replace obsolete equipment, and generally to put plants in better shape for the new competition. This trend still has a long way to go. In some cases, delay is due to difficulty in financing. In many more, however, it is due to inertia. . . . Those early birds who have beaten their competitors to it ought to be able to dig up an extra worm or two.

PURELY PERSONAL

WE didn't take any great interest in the NRA-Weirton row until we read that Ernest Weir was reading "David Copperfield" for the 101st time. Then we were all for Weir.

Once more, a Different New Year to You!

WHAT is the textile processing industry? How is it organized under NRA? What are the major problems of the various branches? How has increasing use of rayon complicated the picture? What significant changes are taking place in the cotton finishing division? As a start toward answering these questions, in this article (the first of a series of three) will be considered briefly the set-up of the various branches of the processing industry and their inter-relationships. The second article will describe steps taken in formulating trade-practice codes and organization of the industry under the Recovery Act. The concluding article will discuss problems of importance in silk finishing and cotton finishing.

Textile Processing

COMPLEX ECONOMIC STRUCTURE ADDS TO PROBLEMS OF DYEING AND FINISHING INDUSTRY

By Winn W. Chase
Assistant Editor, TEXTILE WORLD

THINK of the old-fashioned crazy quilt stitched of many pieces of cloth of various shapes and sizes. Think of an intricate kaleidoscopic pattern changing at every turn of the wheel. Think of a labyrinth, a maze, presenting a bewildering array of intersections, blind alleys, and false turns. Visualize all these combined into one complex grotesque and you have the textile processing industry. Our yarn has been mercerized; our fabrics dyed, printed, and finished. The work was done; and few gave a thought as to how or where. But now, so that it may function properly under the NRA, we are being compelled to fit together into a homogeneous whole the pieces of this gigantic jig-saw puzzle. (We mix our metaphors, but no more so than the processing industry itself overlaps and intermeshes.)

Composed of some 2,000 separate plants, employing 150,000 workers, and doing an annual business of over $700,000,000, the textile processing industry is too complex for simple definition. It is like a picture not yet complete, but—subjected to careful scrutiny—yielding some idea of its form and appearance. For simplicity's sake, we shall at the start consider the processing industry as divided into five major branches. These five branches, in the order of their importance as based on value added to the product are as follows:

1. Cotton Goods Finishing Industry
2. Wool Goods Finishing Industry
3. Knit Goods Finishing Industry
4. Silk Goods Finishing Industry
5. Raw Stock and Yarn Processing Industry

(Note: Despite the widespread use of rayon and other synthetic fibers, there is no rayon finishing industry, as such. Rather, the processing of rayon in the form of yarns or fabrics is one of the functions of each of the branches listed above.)

We shall see later that this simple classification is not enough, that there are several other sections and many subdivisions, that there is much overlapping of functions, that the industry is in a constant state of flux. First, however, we shall limit ourselves to a consideration of the organization and relationship with one another of these five sections.

One word of caution and we can proceed. Statistical information on the processing industry is scarce and often contradictory; hence our figures must be taken only as approximations. Some are based on census reports, some were furnished by trade associations, some are estimates. They are to be considered as indicative, not factual.

Relatively simple in its set-up, the wool goods finishing industry offers a vantage point for our first attack. Dyeing and finishing of woolen and worsted fabrics, together with the merchandising of the finished materials, is carried out almost exclusively by the mills which weave the fabrics. A small percentage of the total annual production of 500,000,000 sq.yd. is processed for the mills by job or commission finishers. Thus, out of about 590 units in this branch, 550 are mill dyehouses and only 40 are plants doing work on commission. The value added to the product in dyeing and finishing wool goods is in excess of $150,000,000 a year.

With few exceptions, the functions of the wool goods finisher do not impinge upon or overlap those of the processors of cotton goods or silk goods. Again, other than technical improvement, little change is taking place in the wool finishing branch. We can then for the moment think of the finishing of wool goods as a distinct and unchanging motif, separate from the rest of the pattern. With the exclusion of the relatively small number of commission plants, it is, in a sense, not a distinct branch of the textile industry.

The organization of the knit goods finishing industry is almost identical with that of the wool finishing branch. That is, of a total of 540 units, employing 22,000 workers, and doing an annual business of over $140,000,000, less than 20% are commission plants, the rest being mill dyers and finishers. Major subdivisions in this branch are finishers of hosiery, circular underwear fabrics, and warp-knit fabrics. Conflicting relatively

little with the other branches, the knit goods finishing industry can for the present also be considered as a separate part of the whole design.

The silk finishing industry, unlike the wool and the knit goods finishing branches, is composed largely of job finishing plants, although a few of the larger silk mills have their own finishing plants and merchandising and selling organizations for finished goods. Thus, in the silk finishing industry there are in the neighborhood of 110 job finishing plants, employing 25,000 workers and doing an annual business of some $100,000,000. Practically 60% of the industry is concentrated in Paterson, N. J., and vicinity and the remainder for the most part is located in Pennsylvania, New York, and Connecticut. Some 30% to 40% of the job finishing business is conducted by 10 or 12 large companies, while the rest is divided among 100 smaller concerns. Job finishers process in the neighborhood of 85% of the total yardage of broad silks, of which the larger part is finished for converters and the rest for mills which sell finished goods but do not have finishing plants of their own.

With the advent of rayon and other synthetic fibers came far-reaching changes in the silk finishing industry; and today a good majority of the fabrics processed by the silk dyer and finisher are composed wholly or in part of rayon or acetate yarns. Later we shall see how this has brought the silk finisher into competition with the cotton finisher. For the moment, however, we can leave the silk finishing branch with the thought in mind that it is separate in its functions from the wool goods and knit goods finishing industries, but is tied in more or less closely with the cotton finishing branch; also we should remember that within the silk finishing industry itself there is a continual changing and rearrangement of the elements which make up the pattern.

In its organization the cotton goods finishing industry is a composite of the set-up in the branches previously considered, and, for good measure, has a distinctive feature in the so-called corporation finisher. Of a total of 210 units, employing 50,000 workers, and doing an annual business of well over $200,000,000 some 120 are mill and corporation finishing plants and 90 are job finishing plants.

Approximately 55% of the job finishing plants are located in New England, 20% in the South, and the remainder for the most part scattered through other Eastern states. On the other hand, 89 out of 122 (or 74%) of the mill finishers are located in the South. Of the total yardage of cotton fabrics finished, somewhat over 50% is processed by the job finishers, 4% by the corporation finishers, and the remainder by the mill finishers.

The rapidly increasing use of rayon in cotton mills has brought with it a change in the functions of the cotton finisher, which has placed him in competition with the silk finisher. In addition, other intra-industry developments which have occurred in recent years have caused other modifications which will be discussed later. In our kaleidoscopic design we find the cotton goods finishing industry is separate from the other branches, with the exception of the silk finishing industry, upon which it impinges. Also we note that the pattern of the cotton finishing industry itself is ready to change at a turn of the wheel.

While no exact figures are available, the total number of units engaged in processing raw stock or yarn is probably well over a thousand. In the majority of cases, however, the process is but one of the steps involved in the manufacture of a finished fabric and cannot logically be separated from the manufacturing operation as a whole. Soaking of raw silk and conditioning of rayon yarn, for example, are operations carried out in throwing plants (or in throwing departments of silk mills) which, as a rule, are not thought of as a part of the processing industry. Again, plants engaged in the scouring of raw wool and warp sizing of cotton yarn, unless these operations are performed on a commission basis or in the manufacture of sales yarn, are not regarded as processing plants.

Therefore, the raw stock and yarn processing industry is usually considered to include only those units which process sales yarn or which process yarn or raw stock on a commission basis. This branch includes over 200 units, employing 11,000 workers, and doing an annual business of approximately $50,000,000. This industry is extremely complex, being made up of a number of subdivisions which have little relation to one another. It is further complicated by the fact that it comprises both mill dyers and job dyers. Many of the plants—particularly the job dyehouses—are relatively small units, but are engaged in a wide variety of work; that is, a plant may dye cotton, silk, wool, and rayon yarns, and at the same time dye hosiery. Furthermore, a number of the job finishers of silk and rayon fabrics are also dyers of silk and rayon yarns. We see then that the raw stock and yarn processing industry is spotted about here and there in the pattern, mixed intricately with the silk goods finishing branch in one place, with the knit goods finishing branch in another, and in still another standing out more or less by itself.

The material for the crazy quilt is almost complete, but we have yet to gather a few more pieces. In addition to the various branches of the processing industry which we have considered thus far, there are several units which almost defy classification. Some of them indeed refuse to call themselves a part of the textile industry; others, like waifs, wait forlornly willing to be put into almost any fold; still others, definitely textile processors, maintain they are different and must have a grouping of their own. It is necessary for our purposes only to list a few of these miscellaneous branches. They include finishers of narrow fabrics, finishers of linens, rubber- and pyroxylin-coaters, specialty fabric finishers, and finishers of cordage and twine.

Now that the pieces of the puzzle have been sorted, we can realize what a hodgepodge the textile processing industry is; the impossibility of defining it properly in a few words; the difficulties encountered in working out trade-practice codes; the reason for overlapping of code authority which in some cases has still to be remedied. How the processing industry has organized under the Recovery Act, and how some of the more serious problems of the major branches are being met will be discussed in subsequent articles of this series.

DEFINITIONS OF TERMS

***Mill Finisher*—A company engaged in the processing of yarns or fabrics manufactured in its own mill.**

***Corporation Finisher*—A company which makes or buys gray goods, finishes them, and sells the finished merchandise.**

***Job Finisher*—A company which processes raw stock, yarn, or fabrics on commission for the owner of the goods.**

***Converter*—A company which purchases gray goods, has them finished by a job finisher, and sells the finished merchandise.**

E. W. France (in lower left, with beard) surrounded by some of his students in the early days of Philadelphia Textile School.

Textile Education

IN U. S. AT HALF-CENTURY MARK

A DISPLAY of German worsteds at the Centennial Exposition in Philadelphia in 1876. The urge of an American textile manufacturer to develop a domestic industry second to none. The need for technically trained men which this ambition entailed. The transformation of a mill superintendent into a teacher.

Thanks to a chain of these and other apparently unrelated events, textile education in the United States will this year celebrate its golden anniversary. For it was in 1884 that the Philadelphia Textile School, the forerunner of them all, was established.

Despite the drama of the international jealousies and competition underlying this event, the writer finds himself more interested in the personal side. And two striking personalities stand out.

One was Theodore C. Search, who, at the time our story opens, was an executive with the worsted spinning firm of Fiss, Banes, Erben & Co. (now Erben-Harding Co.). He it was who went abroad about 1880 to purchase equipment for the production of French-spun worsted yarns—which the Germans used as the basis for the fabrics which made such a sensation at the Centennial. It was Mr. Search who discovered the lack of creative designing talent in this country which would permit the production of a worthwhile fabric from those yarns.

Working as a member of the newly-formed Philadelphia Association of Manufacturers of Textile Fabrics, and as an individual, he finally succeeded in 1884 in bringing to fruition the plan for a textile school in this country.

A word about the man himself. He looked somewhat like Uncle Sam. He had a dominant and pleasing personality. He had apparently unlimited persistence.

He can truly be called the father of American textile education.

The other personality was—and is—Dr. E. W. France. If Mr. Search was the father, Dr. France might be called the foster parent. He took on the care of the child—and has pursued its upbringing to this day.

In those early days, he was running the mill owned by George and James Bullock, at Conshohocken, Pa. His ambition was some day to have his own mill—not to be a teacher. But Mr. Search was a good salesman—and France found himself resigning as a millman to become a school teacher at half the salary. Within a few years he was director—and he has held that post ever since.

Let Bradley C. Algeo, assistant director, tell us about Dr. France. At the school party given for the latter last month, Mr. Algeo said: "To his ability, his singleness of purpose, his absolutely unselfish devotion is due, in no small measure, the position the school now fills. . . . We have been with him for no short length of time. We have, as is natural, criticized at times, especially when in his judgment it has seemed wise to ride over us in a somewhat rough-shod fashion. But we easily recall that in times of personal sorrow and distress among us, his has been the sympathy and material aid that has so truly helped."

Philadelphia Textile School (from an early photograph)

Theodore C. Search, founder of Philadelphia Textile School (at left)

LASTEX Men's Wear

SUCCESS THIS SEASON ENCOURAGES SPONSORS

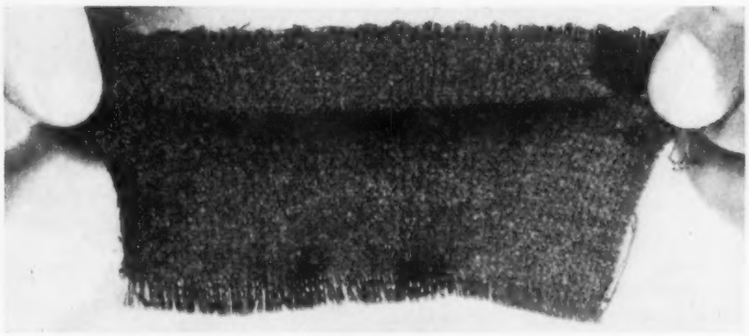


Fig. 3. Lastex glen-check suiting showing stretch

SINCE Lastex made its debut some two years ago, we have seen it go successfully into corsets, underwear, men's caps, millinery, men's hose, women's hose, bathing suits, hair nets, and some dress goods. Now it is going into men's wear—business suits, tuxedos, topcoats, and sportwear, including golf clothes and riding clothes. Soon it will go more extensively, we are told, into more dress fabrics, women's outerwear linings, men's shirts, neckties, gloves, men's hats, linen suits, uniforms (particularly chauffeurs'), pajamas, and many another textile product.

Lastex men's wear made its first appearance this fall, when "Darson Living Clothes," produced by H. Daroff & Sons, Philadelphia, were offered by some 85 retail stores throughout the country, including Finchley's, Gimbel's, Franklin Simon's, Wanamaker's, Saks' (34th St.), in New York; Strawbridge & Clothier's in Philadelphia; J. L. Hudson's in Detroit; and Carson Pirie Scott's in Chicago. Business suits are retailing at $45, tuxedos at $50, topcoats at $40—of which some two to three dollars is said to be attributable to the use of Lastex. "Living Clothes" created the greatest interest in Philadelphia, where they are made, but results throughout the country were good enough to encourage the sponsors to begin developing extensive spring lines.

The U. S. Rubber Co., which manufactures Lastex, and the Adamson Bros. Co., 1790 Broadway, New York, sole distributor, are exercising a quality control plan over Lastex men's wear. The yarn will not be allowed to suffer from inferiority in the tailoring or other details of the garment or fabric. H. Daroff is the only garment manufacturer permitted to use it, and he will probably hold this monopoly so long as he can supply the demand. The mills producing the fabrics—including Faulkner & Colony Mfg. Co., Keene, N. H.; Warren Woolen Co., Stafford Springs, Conn.; Hillsboro Woolen Mill Co., Hillsboro, N. H.; Selden Worsted Mills, Methuen, Mass.; and Thomas Oakes & Co., Bloomfield, N. J.—are not allowed to sell their fabrics to anyone but Daroff. No licenses are involved, but Adamson can cut off the yarn supply from those who transgress their agreement.

The function which Lastex serves in men's wear is to provide more comfort and freedom to the wearer, permit a closer and neater fit without discomfort, reduce amount of pressing required (perhaps to two or three times a year), and act as a shock absorber when the fabric encounters excessive friction. The garments can be dry-cleaned, steamed, and pressed without injury to the fabric, and will stretch 20 to 33⅓% filling-wise. The development is too new to state the full cloth life.

To explain the construction of the fabric, it will be necessary first to review briefly the construction of the yarn. Latex, the milk from the rubber tree, is forced through a pinhole similar to those in rayon spinnerets and is hardened into a continuous thread, called "Lactron," having an elasticity of 500 to 600%. This thread,

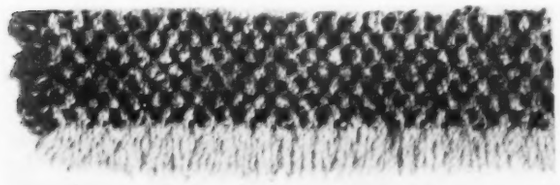


Fig. 1. Lastex coating

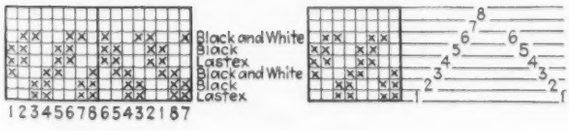


Fig. 2. Weave and drafts for Fig. 1

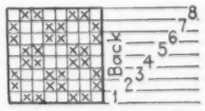


Fig. 4. Chain and drawing-in drafts for Fig. 3

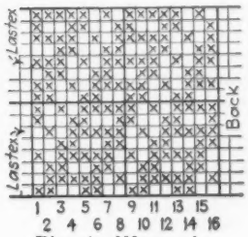


Fig. 6. Weave for Fig. 5

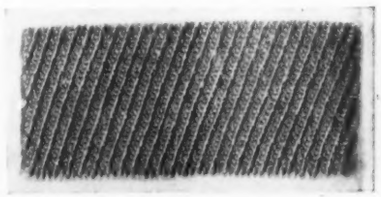


Fig. 5. Gabardine for riding breeches

Fig. 7. Wool and cotton gabardine

being round, can be thoroughly vulcanized, giving it a solid surface having no raw edges. For men's wear the thread is commonly 1/75 in. in diameter, but it can be produced as fine as 1/250 in. The Lactron is then wrapped with a textile thread, and the closeness of the coils of this thread determines the amount which the Lactron core will thereafter be permitted to stretch. This restriction in stretch facilitates the handling of the yarn in subsequent textile processes. Another textile yarn is next wrapped around in the opposite direction to the first, balancing the twist. (Both coverings are, however, applied as consecutive steps in the same process, the Lactron passing upward through one bobbin revolving in one direction which deposits the thread for the first covering, then through a bobbin revolving in the opposite direction which deposits the second covering.) For men's wear the size of the wrapping yarns is usually fine, such as single 60s worsted, for example. Occasionally cotton is used for the first covering.

In men's wear, Lastex is used only in the filling because most strains in men's clothing occur across the fabric. Lastex is inserted every third to eighth pick, depending on the particular construction. A special shuttle for this yarn, which has been devised by the Shambow Shuttle Co., Woonsocket, R. I., has a sponge tension adjustable to give whatever stretch is desired. The stretch is the same as that required in the finished fabric, because the fabric will pull in to the untensioned length of the Lastex and can be stretched only to the original length of the all-textile filling picks inserted each side of it. As the Lastex pulls in after weaving, the other yarns assume a looser and more curved position around the warp threads. Because the textile threads tend to bulk up in the fabric when it is at rest, they are usually of smaller diameter than the Lastex threads. (For cloths involving the use of Lastex in the warp, such as corset fabrics, two beams are used, the Lastex beam being held back somewhat to give the necessary tension.) Analysis of samples illustrated:

Fig. 1. Coating. Warp: white double and twist, equivalent to 2-run, 1920 ends set 80 in. wide in reed. Reed, 12/2. Weight of warp (16 x 1920) ÷ 3,200 = 9.60 oz. Adding 10% take-up, 10.56 oz. Ends per inch finished, 36. Filling: 26 picks per inch of double and twist, 13 picks of Lastex, in following pattern: one pick black-and-white double and twist, 2-run, 5.2 oz.; one pick black double and twist, 2-run, 5.2 oz.; one pick Lastex, 4-run, 2.6 oz. Total weight of three picks, 13.0 oz. (Loom weight, 10.56 + 13.00 = 23.56 oz.) Take-up of Lastex pick, none. Take-up of all-textile picks, 33⅓%. Weave and drafts shown in Fig. 2.

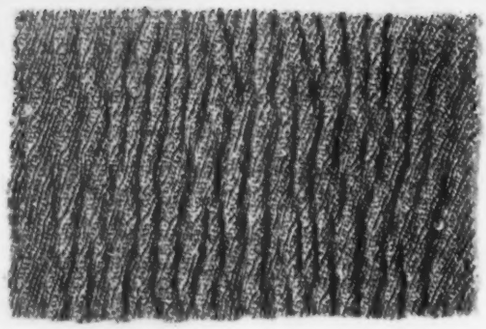


Fig. 8. Crepe resulting from excessive tension on the Lastex

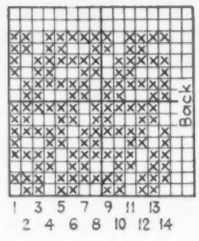


Fig. 9. (At right) weave for Fig. 7

Fig. 3. Suiting, glen check. Warp: 4-run, 3,200 ends set 80 in. wide in reed, 2 ends per dent. Double reed to keep colors from rolling over and getting out of place. Warp weight, 8.80 oz., including take-up. Ends per inch finished, 56. Filling: 39 picks per inch, 4-run, 7.8 oz.; 13 picks Lastex, 4-run, 2.6 oz. (Loom weight, 19.20 oz.) Take-up of Lastex, none; all-textile filling, 33⅓%. Weave: Glen check woven with split basket. Drafts as in Fig. 4.

Fig. 5. Wool gabardine for riding breeches. The filling consists of 5 picks of 2-ply worsted having a take-up of 33⅓% and 1 pick of Lastex having a take-up of 11%. The weave, shown in Fig. 6, is drawn in on 16 harnesses. Its effect is to throw the filling on the back, but the stitching is concealed more by the relative fineness of the Lastex thread than by the weave.

Fig. 7. Wool and cotton gabardine. This is picked 5 cotton, 1 Lastex, 7 cotton, and 1 Lastex, the weave repeating on 14 harnesses and 14 picks. The numerical balance between picks and harness chain is responsible for a harness-skip effect, which could be avoided by picking 5 cotton and 1 Lastex throughout, thus varying the distribution of similar picks. The weave for Fig. 7 is shown in Fig. 9.

Fig. 8. Crepe. Picked 3 cotton and 1 Lastex. Effect obtained by too much tension on the Lastex filling backing.

Worsted Spinning SYSTEMATIC CLEANING

By Alfred Heaton, Consulting Textile Engineer

MONDAY: Wipe leather front rolls with damp cloth; brush out separator tins at doff.
TUESDAY: Clean all waste from bottom and top front rolls.
WEDNESDAY: Clean all waste from carriers and joints.
THURSDAY: Clean all back rolls and brush out roving creels.
FRIDAY: Brush out tape hangers and clean all rails and frame ends with cloth.

ENDS break in the spinning for various reasons; but to maintain a good spin regardless of all other conditions, a systematic method of cleaning is a matter of prime importance. Conceding this, and the equally indisputable fact that cleaning is unavoidable, it follows that the cleaning should be conducted at regular and frequent intervals.

Caps and separator tins are rarely neglected. Invariably they demand to be cleaned with kerosene once each week, although other cleaning agents are sometimes used. Touching a bit further on this, if I may deviate somewhat for the moment, it may be well to experiment with various oil compounds for lubricating the top sliver in the drawing department, rather than employ straight insoluble oil, in order to prevent that hard black grease from accumulating excessively on the caps and separator tins.

Other parts of the frame, however, being less insistent, are not always favored with the same regularity of attention. Yet they should and must be, if a good spin is to continue. To do this cleaning when the lot has run out, or when the frame is broken out for some other reason, is using valuable time which at the end of the year can be found responsible for a serious loss in annual production. This time can be saved and the cleaning done with an equal degree of thoroughness during the course of operation by having a part of the frame cleaned daily in addition to the fly boards, etc., as suggested by the arrangement given above for a five-day week.

[This is one of a series of articles by Mr. Heaton discussing the best methods employed by some twenty leading worsted-spinning plants. Others appeared in the last September and November issues under the heading "Composite Worsted Mill."]

PLANT OPERATION UNDER CODE RESTRICTIONS DISCUSSED AT *Greensboro Meeting*

S. T. Anderson, elected chairman

EFFECT of NRA regulations upon cotton mill operation, particularly with reference to cleaning and oiling schedules, was discussed at a meeting of the Northern North Carolina-Virginia Division of the Southern Textile Association, held in Greensboro, N. C., Dec. 9. Featured on the program was an address on "Equipment and Methods Under NRA" by Sidney S. Paine, president, Textile Development Co., Greensboro.

S. T. Anderson, assistant superintendent, Draper (N. C.) plants of the Carolina Cotton & Woolen Mills Co., was elected chairman of the division, succeeding Culver Batson, Lynchburg, Va., who presided at the meeting. James A. Bangle, Greensboro, was named vice-chairman, while J. O. Thomas, Spray, N. C., was re-elected secretary. Named on the executive committee were: John R. Steele, overseer of weaving, Columbia Mfg. Co., Ramseur, N. C., and R. H. Armfield, superintendent, White Oak Cotton Mills, Greensboro.

Possibilities for manufacturing economies have not been eliminated, according to Mr. Paine, who declared that he knew several mills which had substantially reduced their costs since the cotton-textile code went into effect. Despite the objections to code limitations on productive equipment, which have been voiced from certain quarters, the speaker insisted that this feature of the NRA program for textiles is absolutely necessary. He named several important considerations that manufacturers should recognize in planning their operations:

1. "The cloth is the highest boss." The study of cloth requirements, in the speaker's estimation, generally has been superficial. Giving an example of how accepted theories are not always conclusive, Mr. Paine stated that several years ago in a mill making a fabric with heavy sley and pick, several draft organizations were tried in order to observe the effect of these changes upon the cloth. Finally, it was decided to experiment with a draft of 20 on a ring-spinning frame, and while the yarn was weaker and the spinning did not run so well, it was discovered that the cloth was equally as strong as that woven from the regular yarn. Further tests led to the conclusion that on very heavy pick goods the strength of the cloth follows more closely the strength of the cotton than that of the yarn.

2. The standards of one mill are not necessarily the standards of another. Experiments in one mill revealed that the roving twist could be utilized to control the drafting of the roving in the rolls on long draft systems, although this is directly opposite to the generally accepted practice on long-drafting.

3. Anyone can see the obvious; often the hidden cause controls the situation. Illustrating this point, the speaker cited the results of a test in which heavy roving was run on one side of a spinning frame and light roving on the other. End breakage on the heavier roving was found to be about three times that on the light roving. An examination of the frame revealed the hidden cause of this condition. The band on the spinning frame was too large and the knot was very clumsily made, so that on every fourth revolution of the cylinder the band made a complete roll, and when the band on that one side coming from the top struck the spindle it jumped slightly. After changing the heavier roving to the other side of the frame it was found to run much better than the light roving.

4. Many "standards" that mills have set up are for the sole purpose of covering up something. An example of this was observed in a mill which operated the doffers on cards at very slow speed in order to conceal the poor condition of the machines. Likewise the practice of adding more twist often is resorted to merely to cover up something wrong.

5. A double-shift should not be run necessarily on the same labor system as a single shift. The speaker mentioned the responsibility for oiling as an illustration of this point. He recommended that an operative on the day shift be required to oil certain frames, while another operative on the night shift would oil other frames. The object would be to center the responsibility for oiling certain machines with one man.

6. Some 40-hour shift practices should differ from 55-hour shift practices. The large percentage of cotton mills grind cards once in 30 days, without regard to weight of sliver, grade of cotton, and other factors. Cleaning schedules have been established without actually determining what are the cleaning needs. Under the 40-hour maximum shift it would be advisable to study these requirements. Some mills have adopted an extra shift for cleaning, especially for overhead cleaning, in order to reduce production losses caused by stopping machines.

7. There are many things in a mill that cost money besides wages. The question of power costs is one that deserves particular attention. Another important thing is the method of handling supplies. Many mills lose more than the salary of a supply room clerk in an attempt to economize without one.

There was an open discussion of oiling schedules. Some members stated that no changes in frequency of oiling had been made in their mills since length of shift was reduced to 40 hours. W. H. Gibson, Jr., general superintendent, Mansfield Mills, Inc., Lumberton, N. C., stated that, whereas one oiler had been employed in the weave room on the day shift, another oiler had been added since the mill went on double-shift operation. Oilers were then provided with new oil cups having smaller spouts, so that the oil enters the hole and does not run down the side of the loom, and now oiling is done more frequently, but less oil is used. When a warp runs out, the loom is cleaned thoroughly with kerosene. Mr. Gibson stated that since these changes were made the supply cost in his weave rooms had been reduced about 20%.

With regard to oiling motors, J. V. McCombs, superintendent, Randolph Mills, Inc., Franklinville, N. C., was of the opinion that a regular schedule is impractical. In some parts of the mill, he said, lint will be drawn into the motors and greatly reduce the efficiency of lubrication. He follows the practice of draining all motors in the plant once every 90 days, all line shafting is oiled once a month, and motors are oiled according to their condition, which differs in various parts of the mill. Another member reported oiling motors in a finishing plant only once a month and he had not had a single motor burn out in two years.

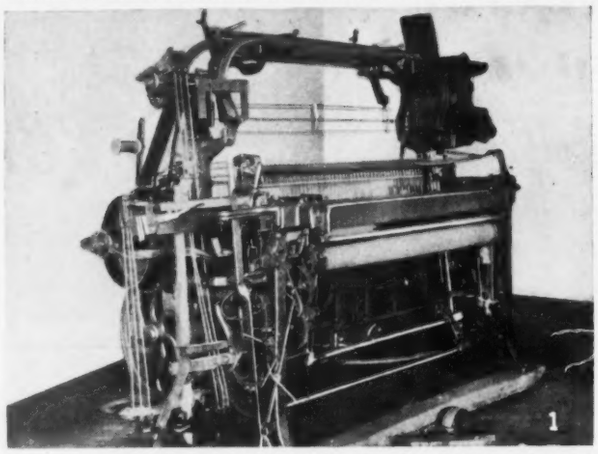
L. V. Andrews, superintendent, Martinsville (Va.) Cotton Mills Co., described a system of motor inspection which had served to increase efficiency. All motors are inspected and gaged once a month, with records filed in the superintendent's office, and are oiled once a week, at which time they are also cleaned with compressed air. Line shafting is oiled once a month.

Brief talks were made by Herman Cone, Thomas Nelson, and W. H. Gibson, Jr.

The LAPPET

AN INGENIOUS WEAVE UNFAMILIAR TO MOST AMERICANS

By Thomas Nelson
Dean, Textile School
North Carolina State College



◆ *Time and again* TEXTILE WORLD *receives samples of lappet fabric with requests as to how they were produced and how they may be duplicated. Usually the samples have originated abroad. In this article Dr. Nelson describes clearly the technic of their production.*

MANY fabrics have been made to imitate embroidery, and one of the best of these imitations is the lappet fabric. This has an extra figuring thread on its face and requires a specially constructed mechanism for its production. It is one of the "slow-production" fabrics, and consequently is not made to any great extent in America. It is made abroad on what is known as the "Scotch" system, which requires a special pattern wheel for each pattern.

The American loom, made by the Crompton & Knowles Loom Works, Worcester, Mass., differs very materially from the foreign loom in the methods by which it produces these effects. The loom which has been in use quite a number of years, but of which only a comparative few are now being operated, is constructed like an ordinary loom with the special mechanism added.

Fig. 1 is a photograph of the Crompton & Knowles lappet loom. This is a front view and shows clearly the needles by which the figuring is made and the chain mechanism for moving the needles according to the pattern required. To show the principle of this motion in a simplified way, a sketch is given at Fig. 2, in which the intricate parts have been left off. This is intended only to show how the figures are made on the fabric.

The figuring threads are placed on a wide spool marked *A* at the back of the loom arch. The spool contains the number of threads required for figuring. The threads pass around tension rods and through the eyes of the figuring needles marked *B*, the needles being securely fastened to the sliding bar marked *C*, which extends across the loom in about the same position as the lay cap in an ordinary loom. The sliding bar *C* is operated through a series of levers from the pattern chain *D*. The size of the risers in the chain determines the distance over which the needles pass. When a smaller riser follows a larger riser, the spring at the end of the bar pulls the bar back the required distance. The pattern is made by building the chain with different sizes of risers.

When the lay goes back from front center, and just before the crank reaches top center, the lever marked *E*, Fig. 2, is raised through a special mechanism. This in turn lifts a bar to which are fastened a number of sharp-pointed guide pins, marked *F*. The bar is directly under the lay, and the pins pass through holes in the lay so that, as it moves back, these pins rise and pass through the shed, thus taking the place of the reed and acting as a guide for the shuttle. The pins are set about 2 in. apart. Fig. 2 also shows how the reed is set at the back of the lay.

The changing of the figuring needles is always done when the crank is on front center. Fig. 3 illustrates the position of the lay and needles when a change of needles for the pattern is being made. Fig. 4 illustrates the position of the needles and guide pins when the shuttle is traveling across the lay. The eye of the needle is at the bottom of the shed; therefore, the figuring thread is in that position with the filling passing over it and binding it to the fabric.

The number of figuring bars will be determined by the pattern to be made, each change in the pattern requiring a separate bar. The position of the needles on the bar depends on the pattern being made and must be set correctly for each pattern. As many as four needle bars can be used on a loom.

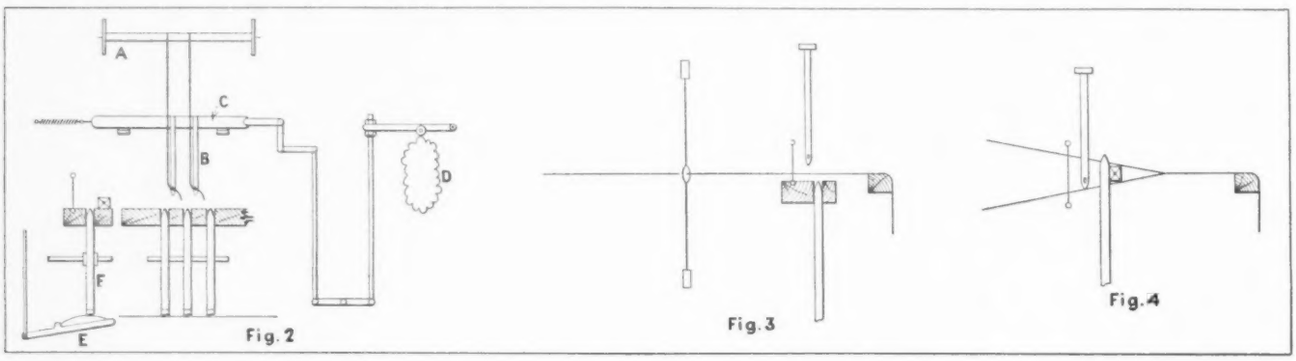


Fig. 2

Fig. 3

Fig. 4

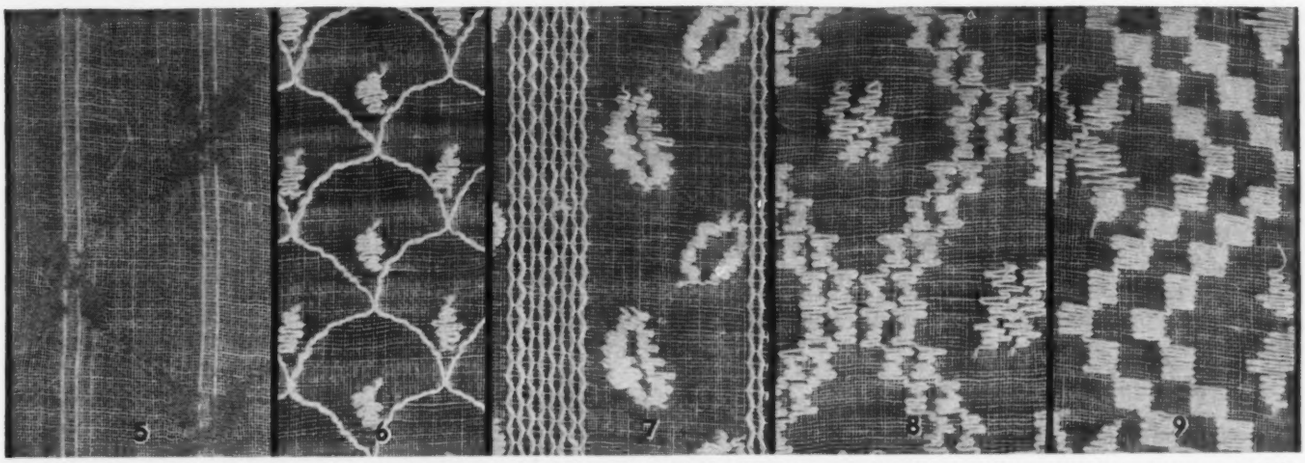


Fig. 5 illustrates a lappet fabric made with two needle bars; and Fig. 6, with three needle bars. Fig. 7 illustrates one of these fabrics in combination with a leno weave; two figuring bars are required. Fig. 8 requires four figuring bars.

When making this class of design, the distance through which the needle bar is moved has to be known. The risers, which regulate the distance, are numbered from 0 to 20, each riser moving the bar a larger or smaller distance. If, for example, a number 5 riser moves the needle bar $\frac{1}{4}$ in., then a number 10 riser moves it $\frac{1}{2}$ in. Therefore, if a number 40 reed is being used, a number 5 riser will move the needle bar over a space of 10 dents. If a coarser reed is used, then the movement will be over less dents but will cover the same distance. A calculation can be made from the reed used as to the number of dents each riser from 0 to 20 will pass over. The nearest riser will be used that will give the nearest approach to the pattern required. Because of the manner in which this motion is operated, there is sometimes a skip of one or two threads at the end in the binding of the pattern. Any change in reed must be considered when changing or making a new pattern.

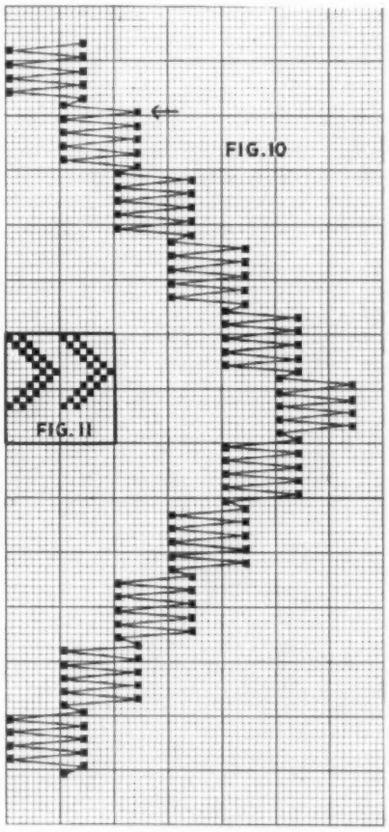
When all figuring threads in the fabric weave the same, only one figuring bar is required; but if there is a difference in the weaving, then more needle bars will be required, according to the pattern. The figuring thread is bound to the fabric at each point by the filling passing over. Therefore, by moving the needle bar either one way or the other the pattern will be made. A larger riser will move the needle bar in one direction; a smaller riser will allow the bar to be pulled back by the spring.

Fig. 11 is a suggestion for a lappet figuring. Fig. 10 shows this mapped out on design paper. The solid squares represent the binding of the figuring thread in the fabric, as the needles will be lowered at these points. Fig. 9 illustrates a fabric which has been made from block sketch similar to Fig. 11. As the two blocks weave the same, two needles will be placed in the correct position on the same needle bar. To make the complete pattern, three figuring bars will be required. The two bars used for the detached figure will be locked at the end of each figure; that is, they will be kept out of contact with the fabric, which permits the figuring threads to float on the face of fabric. This floating thread is cut off by the shearing machine after the fabric is woven.

The numbers for the risers to be used in this pattern are as follows:

→3-4-0-4-0-4-0-4-0-4
3-7-3-7-3-7-3-7-3-7
6-10-6-10-6-10-6-10-6-10
9-13-9-13-9-13-9-13-9-13
12-16-12-16-12-16-12-16-12-16
15-20-15-20-15-20-15-20-15-20
15-16-12-16-12-16-12-16-12-16
12-13-9-13-9-13-9-13-9-13
9-10-6-10-6-10-6-10-6-10
6-7-3-7-3-7-3-7-3-7←

The tension on the threads must be carefully adjusted, because the repeated binding of the figuring cord to the same warp thread will have a tendency to pull in the thread and make a bad or open place in the fabric. It is almost impossible to make a perfect outline of figure by means of the lappet, because if there are two or more threads in one dent, the tying of the figuring thread occurs with different threads; but irregular designs are most common.



TVA Program

HAS INDUSTRIAL-AGRICULTURAL COMPANIONSHIP AS KEYNOTE

By Ralph C. Maultsby
Southern Editor,
TEXTILE WORLD

DIVERSIFICATION and decentralization are two cardinal points in the Tennessee Valley Authority's program for the future industrial development of the area in which its electric power will be distributed. Closely related to this policy are plans for an effective companionship of agriculture and industry. Members of the TVA board are not indulging in pipe dreams, for demonstration areas of at least three counties each have been selected, and these will be developed into practical examples of what can be accomplished in the way of supplementing agriculture with small industrial enterprises. These demonstration areas will be watched with particular interest.

Three major questions naturally come to the front in any discussion of the TVA program: (1) What is the present status of manufacturing in the Tennessee Valley? (2) What benefits will TVA power bring to industries already established in that area? (3) What types of industries may be expected to develop there in the future? This article attempts to answer the above questions, in so far as textiles are concerned, but at this stage of the game it is impossible to predict with any degree of assurance just how the TVA picture will look five or ten years hence. We can, however, indicate certain signposts pointing toward a well-rounded industrial structure.

Strictly speaking, the territory comprising the Tennessee Valley is the drainage basin of the Tennessee River with its tributaries extending into seven States. This area is shown roughly by the shaded portion of the accompanying map. For the purposes of this article, however, we have included in the summary of past industrial development also that section of Tennessee, around Nashville, drained by the Cumberland River.

The industrial history of the Tennessee Valley has been featured by wide diversification. Textile manufacturing, especially rayon and hosiery, in recent years has played an increasingly important rôle in this story of industrial growth. Chattanooga, Knoxville and Kingsport engage in many different kinds of manufacturing, while the same thing in lesser degree is true of several other cities in Tennessee. Chattanooga leads other cities of the area in number of hosiery mills and yarn processing plants. Knoxville is one of the leading producers of knitted ribbed underwear in the country. Kingsport has a large rayon plant making acetate yarn, and other mills turning out cotton goods, broadsilks and hosiery.

Figures compiled from the latest editions of textile directories, and from other authentic sources, indicate the relative importance of the various divisions of the textile industry in the Tennessee Valley and the adjacent area drained by the Cumberland River. The installed capacity of rayon manufacturing plants located in this territory, as reported by the *Textile Organon*, in August, 1933, had reached a total of 67,000,000 lb. per year, or approximately 28.7% of the total U. S. installed capacity. Additional equipment being installed during the last half of 1933 by rayon producers in the Tennessee Valley represents a capacity increase of 6,800,000 lb. per year.

Cotton mills in this area have slightly more than 1,000,000 spindles, approximately 3.25% of the total number in place in the United States, and about 14,000 looms. Full-fashioned hosiery mills, many of which were built or enlarged in the last five years, operate 780 knitting machines, or about 4.76% of the U. S. total. In 70 seamless hosiery mills, scattered from Bristol, Tenn.-Va., to Paducah, Ky., are approximately 17,600 knitting machines, or about 17% of the U. S. total. Knit underwear mills, all but one of which are located in Tennessee and Alabama, have a total of about 1,000 knitting machines.

Other divisions of the industry are not as well represented in the Tennessee Valley. Woolen and worsted mills, largely devoted to the manufacture of blankets, suiting and other fabrics, have about 55,000 spindles, only 1.17% of the total ring and mule spindles in place in the United States, and slightly less than 1,500 looms. Rayon and silk weaving plants, with about 900 looms installed, represent less than 1% of the U. S. total. Large bleaching and fabric finishing plants are located at Chickamauga and Flintstone, Ga., both near Chattanooga, and at Biltmore, N. C. Important yarn mercerizing and dyeing plants are in Chattanooga and its suburb, Rossville, Ga. Huntsville, Ala., with 323,000 spindles and 6,250 looms, is the leading cotton mill center.

Factors of location which have contributed to industrial expansion in the Tennessee Valley during the last two decades are well known. These include an adequate supply of labor, comparative absence of labor unions in the textile industry, favorable freight rates, good transportation facilities to mass markets of the North and Middle West, and electric power available at reasonable cost. What are the additional advantages, if any, which manufacturers already established in the Tennessee Valley can look for in President Roosevelt's program for that area? Indications are that the greatest benefit to existing manufacturing units will come in the form of somewhat lower power rates.

The generating and distributing facilities in the TVA system, as shown on the map, at the outset will consist of the great Muscle Shoals hydro-electric plant (Wilson Dam) and the Norris Dam, which is now under construction on the Clinch River, a few miles northwest of Knoxville. The reserve water supply created by Norris Dam, by supplementing the flow of the Tennessee River in dry seasons, will double the prime power available at Muscle Shoals. These two large hydro-electric plants will soon be connected by a 226-mile transmission line on which work is going forward rapidly. Other transmission lines will branch out from this trunk line.

Curiously enough, the first municipality to contract for TVA power, Tupelo, Miss., about 75 miles southwest of Muscle Shoals, is actually located outside the Tennessee

Valley. The contract with the City of Tupelo, regarded as the standard which subsequent contracts will follow, becomes effective Feb. 6, 1934, and will run for 20 years. Industrial consumers of power will pay the City of Tupelo, in addition to a demand charge of $1.00 per kw. per month (based on maximum integrated 30-min. period), for electric energy on the following rate schedule:

First	10,000 kw.-hr. per month @	10 mills per kw.-hr.
Next	25,000 kw.-hr. per month @	6 mills per kw.-hr.
Next	65,000 kw.-hr. per month @	4 mills per kw.-hr.
Next	400,000 kw.-hr. per month @	3 mills per kw.-hr.
Over	500,000 kw.-hr. per month @	2½ mills per kw.-hr.

The contract states that in no case shall the maximum demand for billing purposes be taken as less than 60% of the maximum monthly demand billed during the preceding 12 consecutive months period.

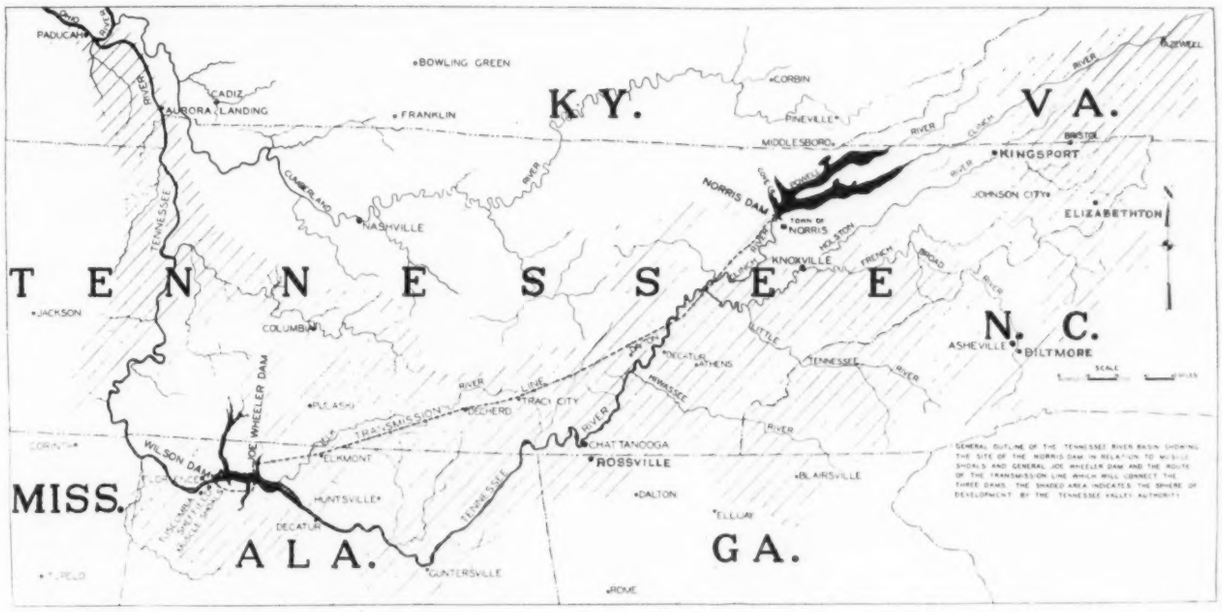
One cotton mill in Tupelo, operating 16,000 spindle and 360 looms, which has purchased its requirements from the power company serving that territory, paid $3,375 for one month's power supply in 1933. Under the schedule of rates adopted by the City of Tupelo the power bill of this plant for the month in question would have been $1,865, representing a saving of 44.7%. When it is considered that, operating under existing code restrictions on machinery hours, power costs of the average cotton mill amount to about 12% of total manufacturing costs, excluding raw materials, processing taxes and depreciation, the importance of such substantial reductions in power rates is quite evident.

The situation at Tupelo is an example of what may be expected in other cities contracting for TVA power. In a special election on Nov. 25, Knoxville voted to approve a $3,225,000 bond issue, the proceeds of which will be used to purchase or build an electric light and power distributing system to utilize TVA current. In Alabama, both Sheffield and Tuscumbia have received allotments from the Public Works Administration for the erection of electric lines, substations and distributing facilities, and are expected to sign contracts for TVA power. Other towns reported to be considering similar action include: Chattanooga, Athens, Columbia, Lenoir City and Dayton, Tenn.; Huntsville, Florence, Decatur and Guntersville, Ala.; Corinth, Columbus and Starkville, Miss.; Rome and Cartersville, Ga.

The program for "companionship of agriculture and industry" was mentioned in the opening paragraph of this article. Conditions in the Tennessee Valley, quite apart from any kind of deliberate economic planning, have caused agriculture and industry to become closely linked together in some sections. We find this situation at Kingsport, Greeneville and Elizabethton, where the workers own small tracts of land several miles from their place of employment, but good roads enable them to drive to work every day. Recent investigations reveal that 25% to 30% of mill operatives in some of these cities are living in rural sections. In Kingsport, the average distance of the rural worker's home from the mill in which he is employed is 8.4 miles.

In keeping with the provisions of the Tennessee Valley Authority Act of 1933, there have and will be established: (1) Research projects looking forward to the utilization of materials of the region, especially those naturally inherent to the Tennessee Valley, in industry; and (2) Test areas for the demonstration of the possibilities in a coordinated diffusion and companionship of industry and agriculture, some of these areas to be equipped with small industries, some with local craft shops, some with educational student-supporting units, and some with large manufacturing units. Obviously, the problem at the moment is to determine which industrial products each locality can produce to best advantage and then to develop plans for getting desirable plants into operation. While the TVA is authorized to engage in experimental work, and can even build demonstration industrial plants for operation on a commercial scale, it will welcome the cooperation of private capital in the development of industrial enterprises for these test areas.

Considering the possible future development of textile manufacturing in the Tennessee Valley, if the principle of diversification is to be followed, it is likely that attention will be directed to rayon weaving, outerwear knitting, silk throwing and weaving, woolen and worsted manufacture, and certain braided and woven specialties. Our analysis of the present status of textile production in that area shows that these divisions of the industry have not been developed on any considerable scale, whereas rayon yarn production, hosiery and underwear knitting, and (in some sections) cotton manufacturing have already reached fairly large proportions.



Mossy Crepe

A COMBINATION OF SAND-CREPE WEAVE AND ONDÉ YARN

By
Carl C. Mattmann, Jr.
A. M. Tenney Associates, and Fitchburg Yarn Co.

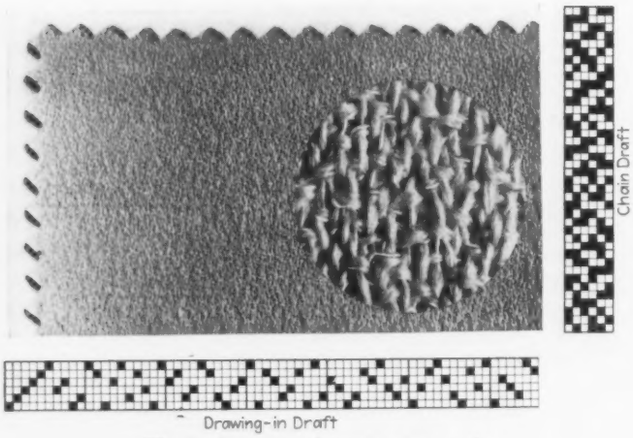


Fig. 1. Acetate and rayon moss crepe

MOSSY crepe—or moss crepe, as it is often called—is a combination of the sand-crepe weave, an extended mummy weave prominent in recent seasons, with the ondé-twist type of yarn, new to silk and rayon men but long familiar to wool men. The silk or rayon ondé consists of a soft-twist yarn wrapped around a crepe core. For example, a 100-denier 10-turn acetate or rayon yarn may be plied twist on twist, ten or twelve turns, with a 100-denier 50/55-turn rayon crepe. Since the crepe has less flexibility than the soft-twist yarn, the former wraps itself around the crepe on the doubler-twister.

Such a yarn produces a well-bodied fabric but with a soft, mossy surface and good draping qualities. The same yarn is ordinarily employed for both warp and filling, but a few constructions employ merely a silk or rayon crepe in the filling. The first moss crepe to reach this country from Europe, last February, was made with a spun silk wrapped around a silk crepe. The spun yarn naturally gave a particularly soft surface, and a very similar effect is obtained today by means of spun rayon. Some constructions are all spun rayon; and even cotton has been experimented with. The ondé type of yarn is likely to remain with us for some time because it is also well suited to the production of woolen and worsted suiting and dress weaves in silk and rayon.

Although moss crepe is sometimes referred to as "moss-crepe sheer," it is really not a sheer. Sand crepe, however, from which moss crepe is derived, is unquestionably a sheer. The first moss crepes were very heavy, and more of a suiting than a dress weight; but present fabrics are lighter. They are best woven square or balanced, such as 48x48, because then they can be used in garments cut either fillingwise or warpwise. The 48x48 is better than the 64x40, just as the 80x80 georgette is superior to the 84x72 georgette. Some handsome, but expensive, mosses are made 75x75. The most beautiful effect is obtained by employing a yarn consisting of a bright acetate wrapped around a rayon crepe. This produces an interesting sparkle. Cross-dyeing the acetate and rayon produces attractive speckled effects.

Synthetic ondé warp yarn does not need to be slashed. At least a 20% shrinkage must be allowed in both warp and filling.

Some constructions follow:

Acetate and Rayon Moss Crepe, Medium Weight, Fig. 1. (All-rayon moss crepes are made in same construction.) Warp: Set 48" in reed, 6.4 ends per inch, 32/3/1 reed, ondé crepe consisting of 100/34-den. bright acetate (or rayon), twisted, spiraled with 10 turns twist-on-twist around 100/40-den. 50/55-turn rayon crepe, set 2 r. 2 l. or 1 r. 1 l. Filling: 48 picks of same yarn as warp, 2 r. 2 l. Weave: Sand crepe, for which drawing-in and chain drafts are shown. Six shafts are employed, with 66 ends and 40 picks per weave repeat. Also made with same warp and 72 picks of 5-thread 13/15 Japan crepe or 100/40-den. acetate crepe.

All Spun-Rayon Moss Crepe, Medium Weight, Fig. 2: Warp: Set 48" in reed, 48 ends per inch, 24/2/1 reed, ondé crepe consisting of 40/1 spun rayon spiraled with 10 turns twist-on-twist around 40/1 spun-rayon crepe, set 2 r. 2 l. Filling: 48 picks of same yarn as warp. Weave: Sand crepe.

Acetate and Spun-Rayon Moss Crepe, Medium Weight. Warp: Set 48" in reed, 64 ends per inch, 32/2/1 reed ondé crepe consisting of 100/34-den. bright acetate, twisted, spiraled with 10 turns twist-on-twist around 61/2 SSM spun-rayon crepe, set 2r. 2 l. or 1 r. 1 l. Filling: 48 picks of same yarn as warp, 2 r. 2 l. Weave: Sand crepe.

Acetate and Silk Moss Crepe. Warp: Set 46" in reed, 96 ends per inch, 48/2/1 reed, ondé crepe consisting of 120/40-den. dull acetate, twisted, spiraled with 10 turns twist-on-twist around 3-thread 13/15 60/65-turn Japan crepe, set 2 r. 2 l. Filling: 68 picks of 5-thread 13/15 60/65-turn Japan crepe, 2 r. 2 l. Weave: Sand crepe.

Rayon and Spun-Rayon Moss Crepe, Heavy. Warp: Set 48" in reed, 60 ends per inch, 30/2/1 reed, ondé crepe consisting of 150/60-den. bright or dull rayon, twisted, spiraled 8 turns twist-on-twist around 36/1 SSM spun-rayon crepe, set 2 r. 2 l. or 1 r. 1 l. Filling: 42 picks of same yarn as warp, 2 r. 2 l. Weave: Sand crepe.

Acetate and Silk Moss Crepe, Light Weight. Warp: Set 46" in reed, 76 ends per inch, 38/2/1 reed, ondé crepe consisting of 75/26-den. bright or dull acetate, twisted, spiraled with 15 turns twist-on-twist around 4-thread 13/15 Japan crepe, set 2 r. 2 l. or 1 r. 1 l. Filling: 64 picks of same yarn as warp, 2 r. 2 l. Weave: Sand crepe.

Acetate and Silk Moss Crepe, Medium Weight. Warp: Set 47" in reed, 68 ends per inch, 34/2/1 reed, ondé crepe consisting of 100/34-den. bright or dull acetate, twisted, spiraled with 12 turns twist-on-twist around 5-thread 13/15 Japan crepe, set 2 r. 2 l. or 1 r. 1 l. Filling: 60 picks of same yarn as warp, 2 r. 2 l. Weave: Sand crepe.

All Spun-Rayon Moss Crepe, Heavy Weight. Warp: Set 48" in reed, 50 ends per inch, 25/2/1 reed, ondé crepe consisting of 30/1 spun rayon spiraled with 8 turns twist-on-twist around a 36/1 SSM spun-rayon crepe, set 2 r. 2 l. Filling: 44 picks of same yarn as warp, 2 r. 2 l. Weave: Sand crepe.

Acetate and Spun-Rayon Moss Crepe, Medium Weight. Warp: Set 48" in reed, 68 ends per inch, 34/2/1 reed, ondé crepe consisting of 75/26-den. dull acetate, twisted, spiraled with 12 turns twist-on-twist around 61/2 SSM spun-rayon crepe, set 2 r. 2 l. or 1 r. 1 l. Filling: 52 picks of same yarn as warp, 2 r. 2 l. Weave: Sand crepe.

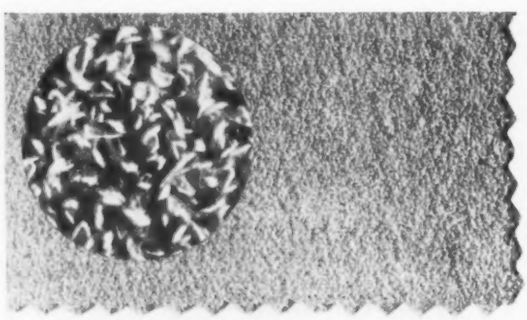


Fig. 2. All-spun rayon moss crepe

Mossy Crepe

PRINTED EFFECTS PROMISE WELL FOR 1934

By John Black

EXAMINATION of the 1934 prospects for mossy crepes, which rose to such popularity among broadsilks during the year just closed, reveals several significant trends. It is safe to assume that this line of novelty fabrics will undergo certain definite changes in identity toward next fall, though the nature of these changes is not yet evident. Assuredly mossy crepes will have a lasting influence. Their sensational success is paralleled only by the velvet boom. Coming up rapidly through the warm weather months, and stimulated by the growing urge for dressy effects, they attained high-pressure popularity in October and November, and they are now selling well for spring.

There are three main aspects to the mossy crepe vogue: First, the prints, second the plains, and third—which of course includes both—the mill and market aspect. The outlook for prints is unquestionably foremost, since it ties in so well with the strong spring trend toward all printed broadsilks. At present, the printed mossy crepe offerings are few due to technical difficulties, but a wider range probably will be available soon. Current designs exploit the floral theme in many variations, while there is also a range of distinctive plaids and other checks, which are being used for formal and tailored apparel.

Printed mossy crepes have certain advantages which should afford them protection against any rapid market weakness due to copying by cheaper houses. In the first place, the printing of mossy crepes presents technical difficulties due to the rough surface of the cloth, and the range of designs which can be printed on these fabrics is limited. In the second place, printing adds to production cost, thus serving as a deterrent to mills which aim at volume through low prices. These prints have a third advantage in that they can be relied upon to move rapidly, due to their close tie-up with the spring fashion trend.

In the plain fabrics, the call is chiefly for black and navy shades, but spring is bringing call for pastels which promise to assume leadership. Weavers of plain fabrics, of course, depend solely upon novel constructions to stimulate new interest; in recent weeks the wool-like surfaces have won favor both with the piece goods buyers and the dress trade. As the season advances, these heavier weights will be pushed into the background in favor of more flat surfaces; indeed, certain of the latter are already being shown.

With respect to the market prospect the picture is varied. Many of the most popular mossy crepes, introduced first in the higher-price range of silk-and-acetates, were successively duplicated in the lower-price ranges until at last they were being turned out in great quantities as all-rayons. In the medium-price range, the market has maintained itself fairly well. In the early days of the vogue, the average mill price for mossy crepe was $1.35; today the bulk of the business lies in the $1.00 to $1.15 range with numerous mills selling as low as 92½c. At present the demand runs all the way from all-rayons and rayon-and-acetate to silk-and-acetate and, to a lesser degree, all-silks.

Gown utilizing mossy crepe fabric interprets glamor trend which is dominant note in 1934 styles.—Courtesy Stehli Silks Corp.

The end of the year found manufacturers of most expensive mossy crepes with unwieldly stocks on hand, and these weavers were inclined to doubt the 1934 prospects for this line. On the other hand, mills specializing in medium-to-low-priced fabrics could not fill orders and entered the holiday period in an oversold condition. With regard to the 1934 outlook, conservatism in production is vitally important, as is always so with a novelty.

The style acceptance of mossy crepes this year—and, indeed, the market stability as well—will depend upon the new constructions in plains and new designs in prints, which mills may offer; mill technicians and stylists have been concentrating on this problem and there seems no question that many of the newest mossy crepes will continue popular well into summer. It is also well within possibility that the more conservative of these novelties may become all-year staples, which, after all would be merely repeating history since numerous of today's staple broadsilks are derived from yesterday's novelty lines.

MAINTENANCE PLAN PROVES FOR FIXING OF *Throwing*

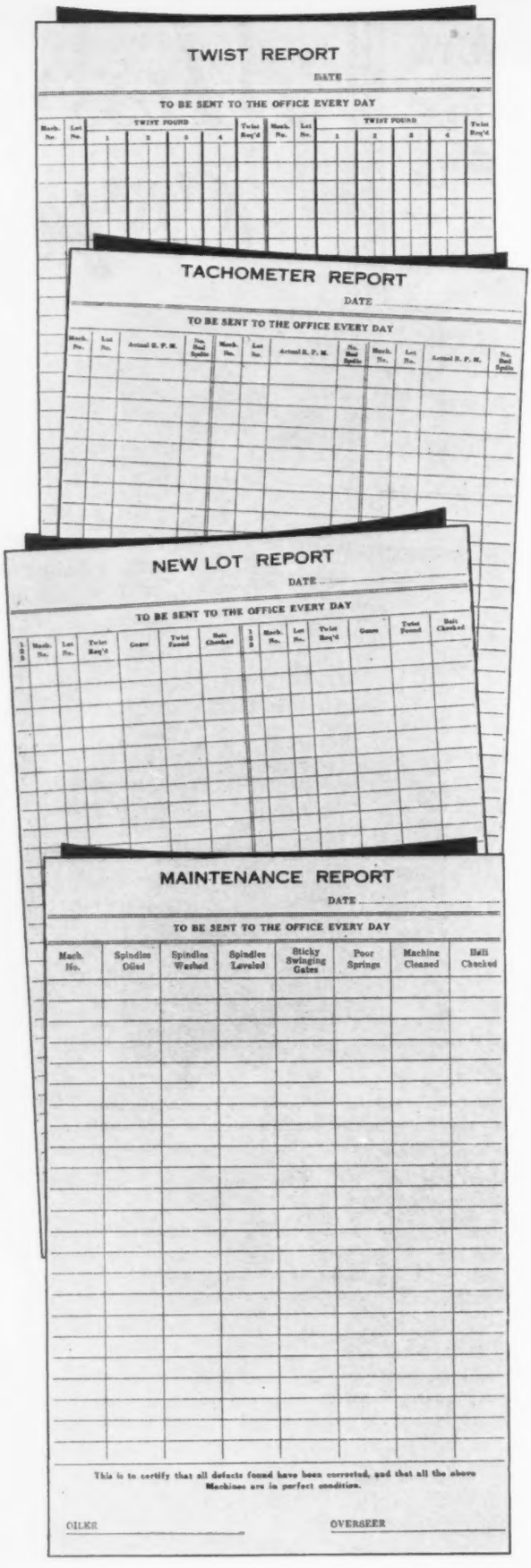


Fig. 1. Daily report sheets signed by the operator and the foreman aid in fixing responsibility for maintenance of spinning equipment.

FOR many years the lack of responsibility on the part of employees has been a handicap to supervision in throwing plants. Obviously, no plant superintendent can supervise personally every machine and every operator under his jurisdiction. The alternative is to organize maintenance and production in such a manner as to fix responsibility for every operation. As an example of this will be discussed in some detail a method for fixing responsibility for maintenance of spinning equipment.

Putting on New Lots

In order to get away from the haphazard, irresponsible manner in which spinners are stripped and new lots are put on in many throwing plants, the New Lot Report shown in Fig. 1 was developed. This is a daily report sheet on which is listed every machine which has been changed during that day. The foreman in charge of the department fills in the columns for "Machine No.," "Lot No.," and "Twist Required." This practice eliminates the numerous errors made through verbal instructions. The sheet is then passed to the person who actually gears the machines. As each spinner is geared and prepared for new work, the person actually doing this work makes the proper entries in his own handwriting and over his own signature. This signature, as well as that of the foreman, may not be an infallible guarantee against mistakes, but it is at least an assurance that more reasonable care has been exercised; that is, we start with the axiom that an employee's signature is his guarantee of responsibility.

Whereas the New Lot Report is used to avoid human errors, the purpose of the Maintenance Report (also shown in Fig. 1) is to prevent mechanical failure. Since it has been quite generally accepted that four weeks is a reasonable lapse between oilings, we will divide the number of spinners by twenty—the number of working days in four weeks. Assuming an installation of 240 machines, this means that twelve frames must be cleaned, oiled, and thoroughly overhauled every day to prepare them for another month's run.

The crew consists of one man and a helper, and these two men can comfortably take care of twelve single-deck, 100-spindle spinners each day. They should start at the first machine and continue regularly from there on. Their work should be so organized that while the helper is stripping, cleaning, raising spindles, and examining for possible defects, the head of the crew is working on the previous machine attending to the actual reconditioning. This man should be a good mechanic thoroughly grounded in the detailed care necessary for good work; and he can and should be held accountable for mechanical defects found by the twist tester, the tachometer, and the stroboscope.

Up to this point we have discussed prevention. We must now consider checks on results. The tachometer and the stroboscope are invaluable for making these checks, and no throwing plant is complete without both instruments. Because of mechanical defects which may arise in either

VALUABLE RESPONSIBILITY IN Plant

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of these instruments, they should be used on alternate days as a check on each other. Each spindle should be checked for speed once daily. Defective spindles are pulled out and reported to the general fixer. Questionable yarn is turned over to the foreman, who can then decide whether or not the maintenance crew is guilty of neglect. Tachometer and stroboscope readings are entered on the Tachometer Report (Fig. 1); and this report, like all others, is signed by the person who makes the tests. It should be mentioned also that the adaptability of the stroboscope for examination of yarns while twisting and for checking of motor pulley and transmission speeds is another reason which makes it a most necessary part of throwing plant equipment.

While we are on the subject of stroboscope, we take the opportunity to point out to manufacturers of spinning and twisting spools that they can appreciably improve the efficiency of the stroboscope, and thereby assist in the production of higher-quality crepe, by delivering spools with a contrasting color stripe or dot on the upper heads. Stroboscopic visibility decreases directly in proportion to plant lighting efficiency. The best lighting conditions for spinner operation are not very favorable for observation with the stroboscope unless the spool head is marked distinctively.

Testing the Twist

We now come to the most important check on the mechanical efficiency of the twisting frame—the twist tester. Testing of twist should be carried out in a thoroughly systematic manner, with the operator testing the first four spindles of each machine the first day, the next four spindles on the second day, and so on until she is ready to start anew. Each spool should be tested twice for possible variations. With this procedure, a comprehensive record is accumulated, not only of the day by day efficiency of each piece of equipment, but also of the twist of each lot.

In order to eliminate the loss of time and possible mixes of yarn incidental to the carrying of samples from the machine to stationary testing equipment, the twist tester should be made mobile by mounting it on a rubber-tired carriage. A brass guide tube for the take-up weight is a necessity to prevent jogging, while a small pin creel for the spool to be tested will be of considerable assistance in preventing snarls or excessive tension and will leave both hands of the operator free for manipulation. It is also advisable that the carriage be fitted with an electric light to overcome unfavorable light conditions as the instrument is shifted about the plant. The form used for reporting results obtained with the twist tester is shown in Fig. 1.

Visual supervision in a throwing plant is most necessary, but the importance of the reports shown as checks on work accomplished cannot be over-estimated. A system of placing responsibility for productive work can also be installed so that poor workmanship will act as a boomerang to the guilty operative. *(Photos from United Rayon Mills)*

Fig. 2. Every other day each spindle is tested with a tachometer for accuracy of twist.

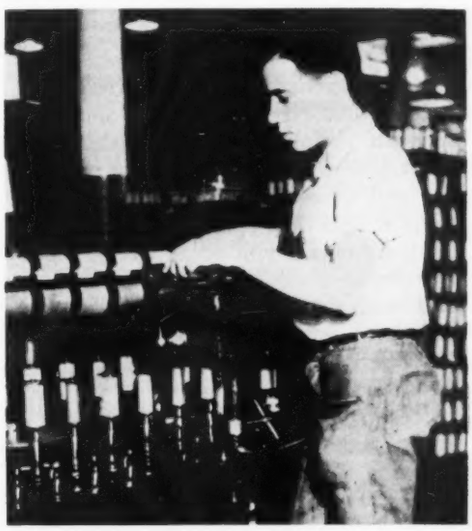

Fig. 3. On alternate days the stroboscope is used for testing spindle speeds.

Fig. 4. The motor-driven twist tester enables a systematic checking of twist.

SIMPLE TEST METHODS YIELD VALUABLE DATA ON

By
William Davis,
M.A.

Knit-Goods Seams

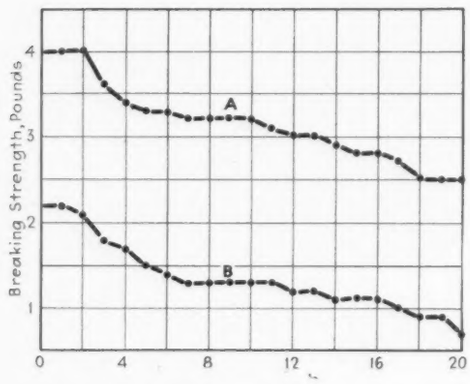

Fig. 1. Breaking strength of balanced and unbalanced double-lock chainstich

KNIT-GOODS manufacturers often wish to know exactly what type of seam is most suitable for use with various fabrics. In this article is described a method for determining the tensile strength, elongation, and take-up of different joins. Also are discussed the results of a few tests made by this method. From this discussion it will be apparent that by making a series of tests of a similar nature, the manufacturer of knitted outerwear or underwear can determine the best type of seam, the optimum number of stitches per inch, and the most satisfactory sewing thread to be employed under a given set of conditions.

The method suggested is to cut samples of knitted fabrics in strips about 0.5 in. wide and join these on the sewing machine, the performance of which it is desired to investigate. The most practical way of doing this is to make the seam and then to cut the fabric on both sides of the sewing thread to give a total width of about 1 in. These strips are then cut into test lengths suitable for the machine available.

Tests can be made with a vertical, dead-weight testing machine operated by power and adapted to register elongation. The same ground fabric should be employed throughout any one series of tests. It is advisable to make the tests across the wale. If the test is made in the lengthwise direction, there is much less stretch and the ground fabric interferes with the test. The fabric in the join influences the strength, elongation, etc.; and corrections have to be made for this factor if the results are to be reliable. On the other hand, it is not feasible to test the stitches without the fabric, as these are but a chaining of threads, and it is in connection with the fabric that they do their work. A series of ten to twenty individual tests on each particular seam and fabric is usually sufficient for practical purposes.

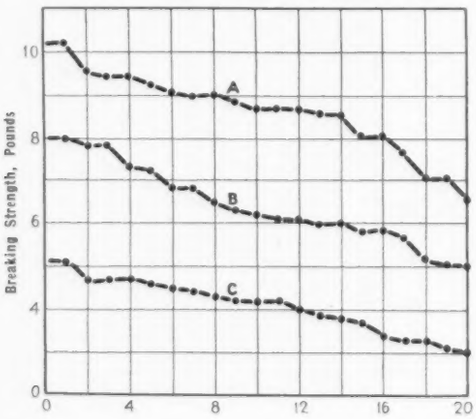

Fig. 2. Influence of number of stitches per inch on breaking strength of double-lock chainstitch.

The tests can be further extended to yield interesting data which serve as guides to the tensions which give best results. For example, the ordinary chainstitch seam can be made in a series of settings ranging from 10 to about 30 stitches per inch; an increase in the tension and the number of stitches per inch has the effect of reducing the amount of strain which the join can bear; and there appears to be a point in the tightening-up process beyond which the resulting join is actually weaker in performance, the threads apparently cutting one another in the seam. In salack types of seams the greatest strain appears to be when conditions allow for a gripping of the fabric by the sewing threads; when the strain is increased, the threads have to bear it more directly and fracture results.

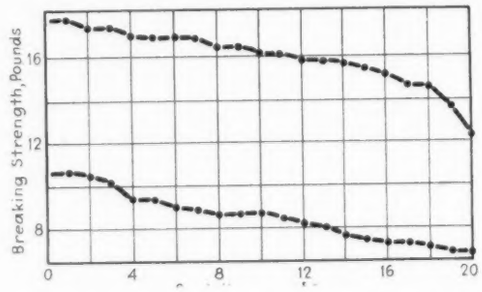

Fig. 3. Influence of number of threads per inch on breaking strength of two-thread overlock seam.

With the lockstitch seam, the ideal condition is to have the needle thread and shuttle thread locking exactly in the center of the fabric so that when strain is applied, both threads will bear their share equally. Often, however, one thread is inserted too tightly in relation to the other, so that the strain falls on one thread only. A series of tests made on two such seams showed that the normal balanced seam bears a breaking strain of 44 oz. for a test length of 7 in. and an elongation of 2.2 in. When the strain is taken on one thread more than the other, reductions of about 2 oz. in breaking strength and 1.9 in. in elongation occur.

In Fig. 1 are shown graphically the results of two series of tests on the double-lock chainstitch—one made on a join which has its threads properly balanced in the stitch; and the other, where the setting of the threads is unbalanced. Curve *A* for the correctly balanced seam shows that the breaking strength ranges from a maximum of 4 lb. to a minimum of 2.5 lb. Curve *B* for the unbalanced seam shows a maximum breaking strength

of 2.2 lb. and a minimum of 0.7 lb. These results indicate the importance of correct balance.

In Fig. 2 are given the results of another series of tests on the same variety of double chainstitch, showing the influence of increasing the number of stitches per inch. In Curve *A* (10 stitches per inch) the maximum breaking load is 10.2 lb. and the minimum is 6.6 lb., with an average of about 8.4 lb.; in Curve *B* (9 stitches per inch) the maximum is 8 lb. and the minimum 5 lb.; and in Curve *C* (8 stitches per inch) the maximum is 4.6 lb. and the minimum 3 lb. In this series of tests, with a difference of only two stitches per inch, the range of possible breaking loads extends from 10.2 to 3 lb. These results are sufficient to indicate the enormous importance of stitch setting and the benefits likely to accrue from adopting some method of testing seams made under various conditions.

One of the most remarkable curves is obtained from the tests of two-thread overlock seam. In Fig. 3 the upper curve shows the results of twenty breaking-strength tests at a setting of 22 stitches per inch. The maximum strength is 17.9 lb. and the minimum 12 lb. The lower curve depicts the results of similar tests with a setting of 14 stitches per inch. Here the maximum strength is 10.5 lb. and the minimum 6.5.

Results of a similar series of tests on three-thread overlock seams are given in Fig. 4. With 12 stitches per inch (Curve *C*), the maximum strength is 8.2 lb. and the minimum is 5.2 lb.; with 14 stitches per inch (Curve *B*), the maximum is 9.5 lb. and the minimum 6.8 lb.; with 16 stitches per inch (Curve *A*), the minimum is 7.2 lb. and the maximum over 14 lb. The influence of the number of threads per inch on the elongation of the same three-thread overlock seam is shown in Fig. 5. Curve *A* records the elongations with 16 stitches per inch; Curve *B* with 14 stitches per inch; and Curve *C* with 12 stitches per inch. The maximum elongation is 8.8 in. for test lengths of 7 in. with 16 stitches per inch; and the minimum elongation is about 7 in. with 12 stitches per inch.

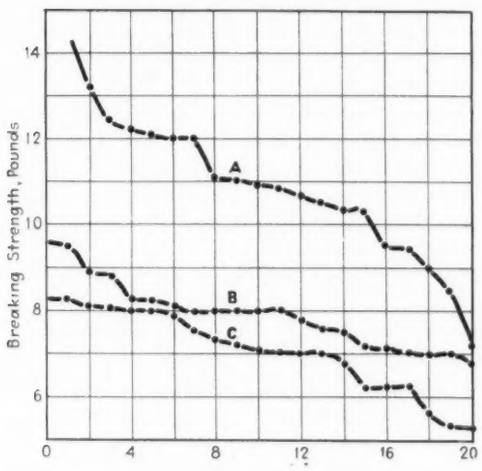

Fig. 4. Influence of number of threads per inch on breaking strength of three-thread overlock seam.

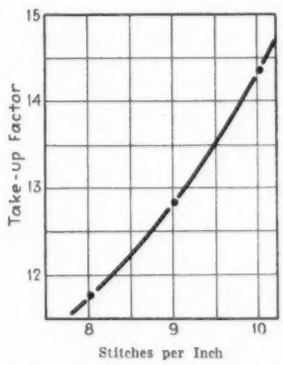

Fig. 6. Influence of number of threads per inch on take-up of thread in three-thread double-lock chainstitch.

The cost of seams is an important factor; and very often the setting of a seam is altered without giving much thought to this side of the problem. In Fig. 6 are given the results of a series of measurements involving the cost factor. The ordinates show the stitches per inch; the take-up is recorded along the abscissae. The tests, which were made on the three-thread double-lock chainstitch seams, show that addition of even one stitch per inch effects quite a large augmentation in the amount of thread consumed. At eight stitches per inch the total take-up of this seam is shown to be 11.8; that is, 11.8 yd. of sewing thread is required to produce 1 yd. of seamed fabric. At nine stitches per inch this has risen to a take-up of 12.8; and at 10 stitches per inch the take-up has increased to 14.3. Since the cost of seaming materials rises directly as the take-up of the thread increases, tests of this nature are significant to all manufacturers of knitted wear.

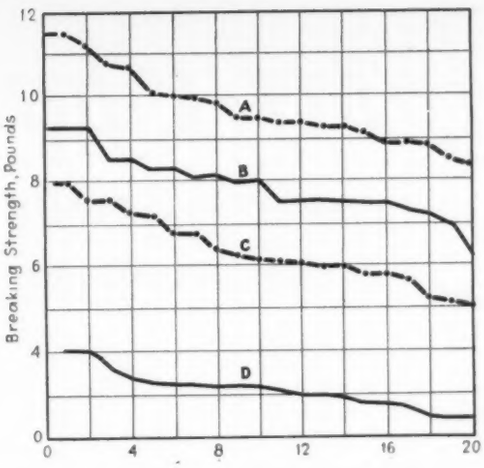

Fig. 7. Breaking strengths of two-, three-, four-, and five-thread seams.

Certain stitches can be altered in form by the addition of two or three needles, each being provided with a thread; furthermore, a covering thread may also be added. Thus the double chainstitch machine can be transformed to give a three-thread seam having a double line of needle threads; next a third line of needle thread can be added; and finally a covering thread can be added. Results of tests obtained from the whole range of these four types of seams are given in Fig. 7. Curve *A* shows that the breaking strength of the full seam with its five threads ranges from 11.4 to 8.4 lb. The four-thread seam without the covering thread (Curve *B*) has a maximum of 9.2 lb. and a minimum of 6.2 lb. The three-thread seam (Curve *C*) has a maximum of 8 lb. and a minimum of 5 lb. The two-thread seam (Curve *D*) has a maximum strength of 5 lb. and a minimum strength of 2.4 lb.

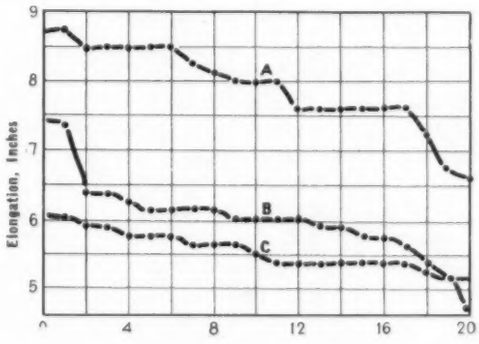

Fig. 5. Influence of number of threads per inch on elongation of three-thread overlock seam.

Gantt Chart

By F. D. Manning
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SHOWS VIVIDLY RELATION OF SALES, INVENTORIES, AND MANUFACTURING

METHODS for setting up a plan of operation applicable in any textile manufacturing plant were discussed in detail in a previous article (TEXTILE WORLD, November, 1933). This plan calls for the establishment of sales, inventory, and manufacturing budgets. For showing vividly the relations between sales, inventory, and manufacturing a graphical presentation often is advantageous. In the following paragraphs, therefore, will be discussed the use of the Gantt chart for bringing out these relations.

The Gantt chart measures in terms of time. A space represents a unit of time and also the amount of work scheduled to be done in that space of time. The width of spaces does not vary, but the amounts of work scheduled to be done in them may vary. The months of the year are laid out in twelve equal spaces, regardless of whether they are four- or five-week months.

As the relations of sales, inventories, and manufacturing are being graphed, these three subjects form the main headings at the left of the chart (Fig. 1). Under each heading come the following three steps:

1. The plan of operation.
2. Variations from the plan.
3. Actual performance.

The plan of operation is laid out under the general heading of "Sales" by inserting, in figures, for each month the master sales budget for that month. Cumulative totals of expected sales are written in, in figures, in a vertical position at the end of each month.

The master sales budget figures, although written but once, serve as the yardstick for "Revised (Sales) Budget" and "Actual Sales." It also serves as the yardstick for the line "Actual Inventory," which appears under the general heading "Inventory."

The master inventory budget is not used on the chart; but the master inventory ratios are laid out under the general heading, "Inventories." The reason for this is that the master inventory budget, being based on a satisfactory turnover, is not so much a matter of how many yards are on hand as it is a matter of how the yards on hand compare with expected sales; therefore the master inventory ratio is a better yardstick for this purpose.

The master manufacturing budget is laid out under the general heading of "Manufacturing" by writing in this budget in the same way the master sales budget was entered. The master manufacturing budget also serves as the yardstick for "Revised (Manufacturing) Budget" and "Actual Manufacturing."

The entering of the revised budgets on the Gantt chart is done by means of three types of entries. Light lines drawn in the equal spaces of each month measure, by percentage of performance scheduled in the month, the performance actually accomplished in that month. Heavy bars drawn through consecutive months measure the cumulative work actually done during that time in terms of work supposed to be done during this same period. Extensions of heavy bars in outline show forecasts.

TABLE I.—Relation

	Sales					
	Master Budget		Revised Budget		Actual Sales	
		Accumulated		Accumulated		Accumulated
Month	Monthly	Total	Monthly	Total	Monthly	Total
Jan.....	660	660	396	396	383	383
Feb.....	700	1,360	504	900	469	852
Mar....	600	1,960	636	1,536	540	1,392
Apr....	387	2,347	445	1,981	405	1,797
May....	637	2,984	669	2,650	618	2,415
June....	825	3,809	743	3,393	702	3,117
July....	950	4,759	905	4,298	....	....
Aug....	1,187	5,946	1,195	5,493	....	....
Sept....	1,124	7,070	1,180	6,673	....	....
Oct.....	875	7,945	....	....	....	....
Nov....	575	8,520	....	....	....	....
Dec....	480	9,000	....	....	....	....

In the Gantt chart as of April 1, 19—, for the hypothetical concern discussed in the previous article, the first three months have passed, and the revised sales budget and the revised manufacturing budget for those three months are past history. The revised sales budget and revised manufacturing budget for the next three months are forecasts.

By reading the light lines on the line headed "Revised (Sales) Budget," one will note that the revised sales budget for January was 60% of its master sales budget; February was 72%; and March, 106%. Being past history, the cumulative result is entered also on the line headed "Revised (Sales) Budget" by the heavy bar and shows by the dated breaks in the bar the cumulative position at the end of each month, through March. In other words, the cumulative total of revised sales budget at the end of the first quarter was equal to sales originally hoped for by about the tenth of March.

By the light lines on the line headed "Revised (Sales) Budget" it may be noted that the revised sales budget forecast for April is 115%, for May 105%, and for June 90%—an expected improvement for the second quarter sales over those of the first quarter. Being a forecast, the cumulative total is in outline, and extends from the end of the heavy bar which covers past history. It indicates that at the end of June cumulative revised sales are expected to equal the master sales budget originally planned to the middle of June.

In the same way, revised manufacturing budget calls for a production, by the end of the first quarter, equal to master manufacturing budget for the middle of March; and the forecast for the second quarter calls for an output equal to that planned for June 10 by the master manufacturing budget.

It is to be noted that the production called for by the end of each quarter exceeds the volume of expected sales in these quarters, hence the revised budgets, if realized, will cause an increase in inventory.

The entering of actual performances on the Gantt

chart is done in exactly the same way as for the revised budgets, the light lines registering monthly performances and the heavy bars cumulative results.

The "Actual Sales," using the master sales budget as the yardstick, are 58% of the master sales budget for January, 67% for February, and 90% for March. The cumulative actual sales for the three months are equal to but little more than what was hoped for in two months when the master sales budget was made, and are less than were estimated when the revised sales budget was made.

position is $\frac{2.65}{1.75}$, or 151% of what it should be. This means that there is 51% more actual inventory on hand than there should be at the end of January if the desired inventory turnover is to be attained. In the same way, the actual inventory is 41% and 18% higher than it should be in February and March, respectively.

The forecast of inventory position, if revised sales budget and revised manufacturing budget are realized, indicates an expected inventory ratio of 2.05 consecutive ensuing months of master sales budget at the end of

of Sales, Inventory, and Manufacturing as of July 1

(*All Figures, Excepting Ratios, in Thousands of Yards*)

Inventory				Manufacturing						
				Master Budget		Revised Budget		Actual Mfg		
Master End of Month	Actual End of Month	Master Inventory Ratio	Actual Inventory Ratio	Monthly	Accumulated Total	Monthly	Accumulated Total	Monthly	Accumulated Total	Capacity Available
1,149	1,500	1.75	2.65	616	616	496	496	580	580	2/28
1,121	1,650	2.10	3.03	672	1,288	604	1,100	575	1,155	3/25
1,431	1,791	2.49	2.93	910	2,198	636	1,736	675	1,830	4/29
1,772	2,098	2.33	2.67	728	2,926	700	2,436	712	2,542	5/27
1,947	2,300	2.14	2.44	812	3,738	803	3,239	820	3,362	6/24
2,137	2,005	2.00	2.45	1,015	4,753	783	4,022	907	4,269	7/29
1,971	....	....	....	784	5,537	700	4,722	...	....	....
1,512	....	....	....	728	6,265	815	5,537	...	....	....
1,228	....	....	....	840	7,105	715	6,252	...	....	....
941	....	....	....	588	7,693	...	....	...	....	....
954	....	....	....	588	8,281	...	....	...	....	....
1,193	....	....	....	719	9,000	...	....	...	....	....

The actual process and finished inventory is laid out on the "Actual Inventory" line, in terms of master sales budget. The actual inventory on hand at the end of each month is graphed to show how many consecutive ensuing months of master sales budgets would be covered before the actual inventory is exhausted. At the end of January the actual inventory was the equivalent of 2.65 consecutive ensuing months of master sales budgets; at the end of February, 3.03 months; and at the end of March, 2.93 months.

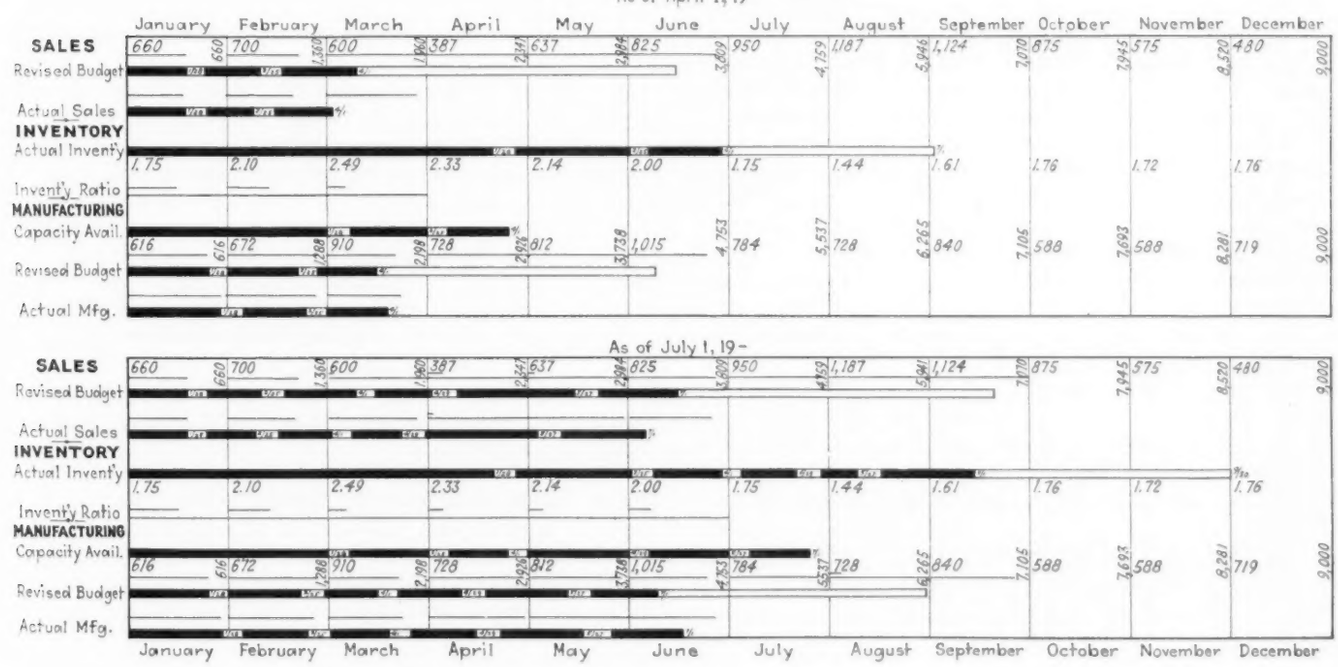
The actual inventory on hand at the end of each of these months appears to be excessive, and its exact position may be determined by use of the master inventory ratio. The master inventory ratio for January is 1.75; the actual inventory ratio is 2.65; therefore the inventory June, as indicated by the outline, which compares very well with the master inventory ratio of 2.00 months for the end of June.

It is interesting to compare these excess percentages of actual process and finished inventory, obtained on the ratio basis, with the percentage obtained by dividing yards of actual process and finished inventory by the yards of master inventory budget. The results are as follows:

	Ratio %	Yardage %
Jan.	151	135
Feb.	143	147
Mar.	118	125

The situation in terms of master inventory ratio (hence inventory turnover desired) is worse in January

RELATION OF SALES, INVENTORY, AND MANUFACTURING

(Figures, excepting ratios, in thousands)

As of April 1, 19-
January February March April May June July August September October November December
SALES
Revised Budget
Actual Sales
INVENTORY
Actual Invent'y
Invent'y Ratio
MANUFACTURING
Capacity Avail.
Revised Budget
Actual Mfg.
660 700 600 387 637 825 950 1,187 1,124 875 575 480
1.75 2.10 2.49 2.33 2.14 2.00 1.75 1.44 1.61 1.76 1.72 1.76
616 672 910 728 812 1,015 784 728 840 588 588 719
As of July 1, 19-
SALES
Revised Budget
Actual Sales
INVENTORY
Actual Invent'y
Invent'y Ratio
MANUFACTURING
Capacity Avail.
Revised Budget
Actual Mfg.
660 700 600 387 637 825 950 1,187 1,124 875 575 480
1.75 2.10 2.49 2.33 2.14 2.00 1.75 1.44 1.61 1.76 1.72 1.76
616 672 910 728 812 1,015 784 728 840 588 588 719
January February March April May June July August September October November December

and better in March than the yardage percentage would indicate. This is because the pre-planned increasing inventory ratio is figured in terms of expected sales, and expected sales for April are the lowest for any month of the year, after which expected sales begin to increase. The yardage percentage, therefore, is not as good nor as sensitive a basis for judging the inventory position as the master inventory ratio percentage.

The mill, at the end of each monthly period, has normal capacity available for delivery of finished goods, which is four weeks. And this is laid out by a heavy bar on the line "Capacity Available."

The "Actual Manufacturing" is laid out in the same manner as the "Actual Sales," and shows for January actual production equal to 94% of master manufacturing budget; for February, 84%; and for March, 74%. The cumulative total for actual manufacturing to the end of March is equal to what was originally planned to be manufactured in the master manufacturing budget by about March 20.

The picture of this hypothetical concern at the end of the first quarter as graphed by a Gantt chart may be summarized as follows:

It was not possible to attain the plan of operation on which cost estimates were based. The revised sales budget for the quarter fell about two-thirds of a month short. The actual sales did not equal the hopes expressed in the revised sales budget.

The actual process and finished inventory on hand at the end of the first quarter, equal to master sales budgets of approximately the next three consecutive months, is excessive, being 18% larger than it should be. It has shown an improvement in its ratio position each month, but this is mainly due to the pre-planned increasing master inventory ratio.

There is finishing capacity available at the end of four weeks.

Actual process and finished inventory covers master sales budgets for the next twelve weeks. The master inventory ratio of 2.49 months is equal to ten weeks of expected master sales budgets. There can be no complaints justified that the mill cannot make deliveries on time, as far as the effect on sales is concerned.

On a very strict basis, judging by the two figures above and the normal delivery of four weeks, it might be argued that a better turnover should and could be made, especially as the mill is on a leveled operating basis. However, a sufficient variety of finished inventory to assure a rounded line cuts down this possibility.

While actual sales have run behind revised sales budget, actual manufacturing has run ahead of revised manufacturing budget, which has resulted in increasing the actual inventory. As manufacturing orders are placed by the sales department, the mill can be held responsible only in so far as it has exceeded deliveries requested.

The forecast for the second quarter indicates hopes that the sales will be equal to master sales budget for the second quarter, but will not make up deficit of the first quarter.

Master inventory ratio of 2.00 for the end of June will be practically attained, due to curtailing of manufacturing, as indicated by the revised manufacturing budget.

To show what actually happened in the second quarter, a report in figures of the hypothetical concern as of the end of June is given in Table I.

Without going into the detail of entering this information on the Gantt chart, which is done in the same manner as in the first quarter, we find the position of the concern at the end of June to be as follows:

Actual Sales did not equal either master or revised sales budgets.

Actual inventory is equal to 2.45 months of expected master sales budget. The master inventory ratio for the end of June is 2.00. The actual inventory is 22% too high. Now the end of June was the peak point for process and finished inventory, and a sharp drop of ratio to 1.44 by the end of August indicates that the actual inventory position is serious unless sales are better than hoped for. The revised sales budget for the third quarter holds no great hopes for this.

Actual manufacturing again has exceeded revised manufacturing budget and has contributed to the excessive 22% of inventory.

Capacity for finished delivery is still the normal four weeks.

Just a word should be said about capacity for finished delivery. In the hypothetical concern here given, it happens to be normal at the end of each of the quarters graphed, but this should not be taken to mean that it automatically must remain so. The instant deliveries requested during any period of time reach a point where they exceed capacity available, as laid out in the leveling basis for that period of time, the mill has the option of doing one of two things—either breaking the predetermined balanced leveling plan of operation, or extending the date when finished capacity will be available; i.e., extending the normal allowance.

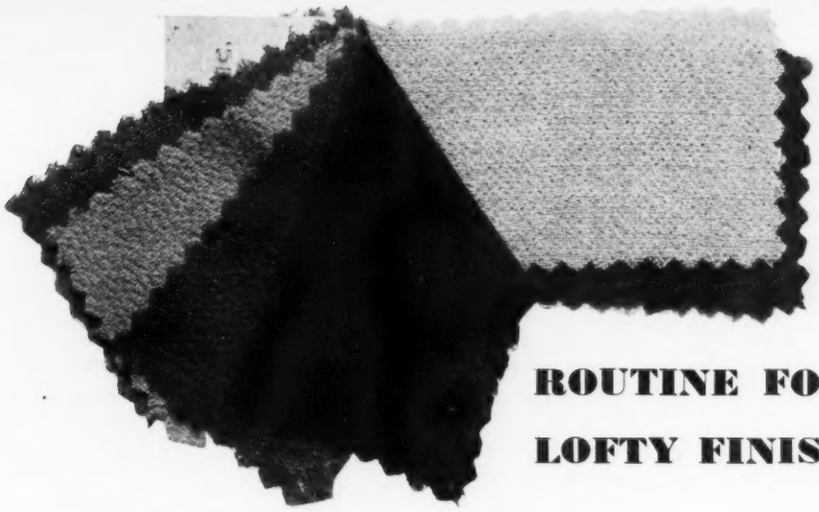
Accurate means for determining this point should be set up by the mill and used by the sales departments in estimating deliveries requested of the mill, for upon this point rests the key to a successful concern—satisfactory service to the trade.

The conditions of this hypothetical concern, as graphed, certainly give no justification for the sales department to request the mill to depart from the leveling program as laid out.

The forecast for the third quarter indicates that sales are expected to be about equal to master sales budget for the quarter; that manufacturing is to be curtailed, but the inventory at the end of September will be equal to about two months of expected master sales budgets, and on a master inventory ratio of 1.61 for September will be 25% too high.

In other words, the hypothetical concern, at the end of the third quarter, based on its past history and measured on a reasonably attainable basis, will not have been profitable, as having fallen behind in sales during the first quarter, it has not been able to make them up, nor has it adjusted its inventory position during that time. It will not be able to make the desired inventory turnover. In addition to this, it has lost some of the economies of smoother mill operation. The actual manufacturing was run more smoothly than the revised manufacturing budgets were laid out. At the end of the first quarter revised budgets were made up which would bring the actual position in harmony with the plan of operation. The revised plan was not maintained, however, and the result is reflected in the expected position at the end of the third quarter.

It is believed that methods of the type outlined in this and the preceding article are far more effective in producing economies than are unscientific ruthless curtailing of various activities, without a clear knowledge of the effect of these curtailments.



Wool Crepes

ROUTINE FOR PRODUCING FIRM, LOFTY FINISH WITHOUT GLAZE

By G. L. Atkinson

OF the numerous difficulties which confront the finisher of wool crepes, perhaps the most serious is the tendency of the fabric to crack during the scouring or dyeing operations. Since this fault is practically incurable, every precaution should be taken to avoid it. Another common defect in fabrics of this nature is a harsh, glazed finish. The following routine is suggested for preventing these and other defects and for obtaining the dull appearance and full, firm handle desired with these goods.

Wool crepes are often dyed in light shades; therefore goods of this type should always be thoroughly examined and all stains removed before the goods leave the gray room. After this examination in the gray, the goods should then be sewn in batches of four pieces and a cotton crabbing wrapper attached to each end of the batch.

Steaming and Scouring

To prevent cracking of the fabric in subsequent operations the pieces should now be lightly steamed on the steaming rollers of the crabbing machine or by means of a steaming-off machine. It is essential that the goods be wound on the steaming can under an even tension, sufficient to prevent the formation of creases but not too great. The steam pressure should not be greater than 7 to 8 lb., and the time not over 3 to 4 min. The steaming can should revolve throughout the entire operation, as in this way the goods are steamed quickly and uniformly and reversing of the pieces for a second steaming is unnecessary. Steaming should not be prolonged: otherwise the goods may become glazed and acquire a thin, papery handle.

Following steaming, the wrappers are detached and the goods are scoured. Whenever possible, scouring should be carried out in an open-width machine. The scour should not be unduly prolonged nor should the pieces be subjected to a very high temperature or too great a pressure. The rollers of the open-width machine are generally adjustable in order that during the scouring operation the pressure can be changed if necessary. Rubber-covered rollers have been found to give good results. The following method has proved satisfactory for scouring this type of fabric: wet out with water for 10 min., scour with soap and soda ash for 15 min., rinse in warm water for 25 min., and rinse in cold water for 35 min.

After scouring, the next operation is dyeing. The chief faults which must be guarded against in dyeing are cracks and running marks. Precautions against these defects are to keep the temperature of the bath as low as possible, to carry out the operation in the shortest possible time, and to make certain that the machines are not overloaded and that the goods are well opened out.

Precautions in Finishing

Operations following dyeing are rinsing, extracting, and drying. In drying wool crepes, care should be taken that the temperature is not too high and that the goods do not remain too long in the dryer. Proper control of tension on the filling is also important. If the tension is too great, it may draw the fabric; if the tension is not sufficient, it may cause the fabric to cockle or blister while it is drying.

The goods are next sheared on both back and face, the hollow or spring-bed machine usually being preferred for this purpose. After shearing, the pieces are examined, and all pieces which do not require re-processing are passed on for decatizing. The fabric is run onto the decatizing machine under a light tension, thoroughly steamed, and is run off again at steam heat. Some finishers do not decatize crepes, as they believe that this process causes cockles. The writer has found, however, that cockling does not occur if the goods have been lightly steamed during their preparing.

Removal of laying marks and creases, caused by running the goods off the decatizing machine at steam heat, is accomplished by passing the goods over the steaming machine. This run over the steaming machine also adds to the final handle of the fabric. Finally the goods are pressed on a rotary machine or by folding the pieces with the face inside, papering them on the back with warm press paper, and allowing them to lie for 4 to 6 hr. in piles of six to eight pieces. When the goods are pressed by the latter method, great care must be exercised during the stripping out of the pieces, as they will still be warm. If the goods are not carefully stripped out, or if they have not been laid down quite straight for pressing, laying marks and creases are liable to occur. It will be found that if the routine given above is carefully followed, the finished goods will be free from cockling, blistering, running marks, etc., and the finished fabric will have a full, firm handle.

TEXTILE FIBERS ASSUME INCREASED IMPORTANCE AS *Heat Insulators*

By Arthur N. Elliott

COMMERCIAL insulators may be divided into two general groups—fibrous materials, either loose or fabricated into soft quilts between thin layers of paper or textiles; and rigid boards in which the components are bonded together either by pressure or by an adhesive. The majority of textile fibers utilized as insulators fall in the first group, although cellulose is often used as a base for insulators in the second classification. A general comparison of insulation values according to grouping is shown in the accompanying illustration.

Insulation is measured in terms of thermal conductivity, which is the numerical measure of the ability of a substance to conduct heat. It may be defined as the amount of heat (measured in B.t.u.) which will flow in 1 hr. through a uniform layer of material 1 sq.ft. in area and 1 in. in thickness, when the temperature difference between the surfaces of the layer is maintained at 1° F. Insulating materials possessing thermal conductivities of 0.25 to 0.35 B.t.u. per hour may be considered in the class of good insulators—the lower the thermal conductivity, the greater the insulating value.

The thermal conductivity of several textile fibers as found by the U. S. Bureau of Standards is shown in Table I. All materials other than wool were tested in bone-dry condition; and as the wool was not tested under the same conditions, the values given for this fiber are not strictly comparable with the rest. It is interesting to note that the insulating powers of fibers are altered under varying conditions. Likewise, impurities on a fiber will affect the insulating properties; for example, wool fibers which have been degreased and dried at 212° F. will have a lower thermal conductivity than wool in the grease. Again, the arrangement of the fibers in an insulating material of a given density has a pronounced influence on the conductivity.

Commercial insulating materials may be subdivided into three classes—those which contain vegetable matter, mineral matter, and animal matter. Textile fibers, of course, fall into the first and last group. Table II gives the thermal conductivity of several commercial insulating products on the market which contain textile fibers as a component.

It will be noted that the less expensive fibers which possess good insulating powers are those which are widely used. For example, linen possesses low conductivity and is used in insulating products as the natural fiber, flax. Wool and cattle hair are also employed extensively. Kapok has excellent heat-insulating properties, and—although somewhat expensive—is the principal component of one of the best-known commercial insulating materials. On the other hand, silk is little used in commercial insulators because of its cost.

In general, textile fibers are more effective as insulating materials than is mineral matter; and in many instances to increase the insulating properties of the latter, a textile fiber, such as flax, is mixed with it. On the other hand, asbestos, the mineral fiber which has found varied use in textiles to lend fire-proofness to them, is employed in many commercial insulators. One application in which asbestos is used extensively is as an outer layer of textile insulating materials for protection from flames.

Aside from the question of cost, the chief disadvantage of textile fibers, as compared to mineral fibers, is the fact that they are more flammable. In this respect the animal fibers show the least susceptibility of the textile group. A prevalent general opinion is that textile fibers are less durable than other insulators under varied atmospheric conditions. Yet, in many instances, railroad cars, having cattle hair as insulation, after being in service for 30 years have been dismantled and the hair found to be in good condition.

Two developments which augur an increasing demand for heat-insulating materials are the advent of air-conditioning systems for homes and the growing use of insulated railroad cars for the transportation of perishable foods. For this reason we should not overlook the importance of textile fibers as heat insulators.

TABLE I. Thermal Conductivity of Textile Fibers

Fiber	*Density in lb. per cu. ft.*	*Thermal conductivity in B.t.u. per hr.*
Cotton	3.30	0.239
Wool	6.24	0.244
Silk noils	0.90	0.256
Kapok	1.00	0.240
Flax	2.40	0.269
Jute	3.50	0.249

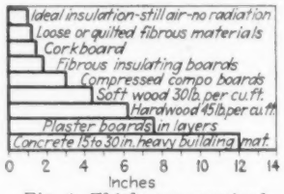

Ideal insulation-still air-no radiation
Loose or quilted fibrous materials
Cork board
Fibrous insulating boards
Compressed compo boards
Soft wood 30lb. per cu.ft.
Hardwood 45lb.per cu.ft.
Plaster boards in layers
Concrete 15 to 30 in. heavy building mat.
0 2 4 6 8 10 12 14
Inches

Fig. 1. Thickness required to equal 1 inch of ideal insulation.

TABLE II. Thermal Conductivity of Commercial Insulating Materials

Description	*Density in lb. per cu.ft.*	*Conductivity in B.t.u. per hour*	Authority
Compressed vegetable fibers—⅜ to 1 in. thick.....	11.24	0.328	U. S. Bureau of Standards
Compressed flax fibers—⅜ to 1 in. thick	11.24	0.326	U. S. Bureau of Standards
Fiber from Eucalyptus tree	——	0.310	Griffiths
Flax fiber confined with either Kraft or waterproofed paper	11.24	0.299	U. S. Bureau of Standards
Asbestos enclosed burlap (jute) ..	——	0.331	U. S. Bureau of Standards
Flax and paper lining steel railway car insulation ..	——	0.346	U. S. Bureau of Standards
Wool felt	9.36	0.433	Taylors
Hair felt and building paper	18.72	0.270	U. S. Bureau of Standards
Mineral wool, vegetable fibers (flax), & waterproofing binder .	12.50	0.380	U. S. Bureau of Standards

Selling the Finish . . .

NEVA-WET CORP. BUILDS MARKET QUICKLY WITH UNIQUE MERCHANDISING POLICY

A demonstration planned by Neva-Wet as part of the general publicity effort behind the new finish

WITH the rapid development of new textile finishes, many of them competitive, the task of winning trade and consumer acceptance for these finishes becomes increasingly difficult. That it can be done—and done both quickly and economically—has been demonstrated by the enthusiastic receptions accorded certain finishes during recent months. Analysis of the approach employed to promote these developments reveals many new slants in salesmanship, and offers valuable ideas for the merchandiser. An outstanding example of this new trend is the merchandising policy of the Neva-Wet Corp.

Hitherto the retailer has not been recognized at his full value in winning trade and consumer acceptance for new products. The pioneers in this direction were Irving and Samuel Lefkowitz, of New York, inventors of the Neva-Wet process for making fabrics water-repellant, who went direct to leading department stores with samples of their work, and asked that the merchandise be tested by the stores' chemists. When the tests proved satisfactory, the way then was paved for the opening of negotiations with the fabric manufacturers and the garment houses which supplied these stores. Finally when the processed fabrics came to the stores either in ready-to-wear or piece goods, the stores advertised them with zeal, highlighting the name of the finish, and quoting their own laboratory findings to support the claims of the processors themselves.

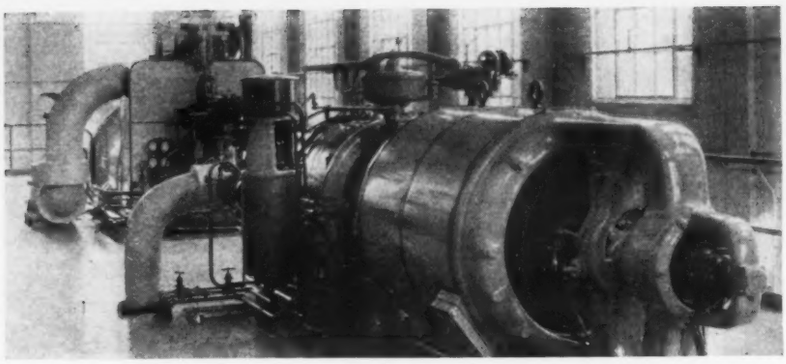
It is an interesting point that frequently store laboratory tests spring surprises in the way of revealing added values of the finish not previously known. In the case of Neva-Wet, for example, the processors' campaign was based mainly on the water-repellant quality; however, retailers' tests showed that the treatment also made the fabric curl-resistant, which is a good sales point for curtains, and also moth-resistant; and both points were emphasized in the store's advertisements.

The policy of direct retail contact, while important, is only one of several new departures in merchandising that are helping win acceptance for Neva-Wet fabrics. For example, it is particularly significant that style appeal rather than utility appeal has been the dominant thought in promotion. Here may lie a possible answer to the moot problem of effectively merchandising a finish which is strictly utilitarian. Converters, ready-to-wear manufacturers and retailers are a unit in agreeing that finishes which add style can be sold more easily than finishes which add usefulness.

The experience of the Neva-Wet Corp. indicates that hereafter the store will play an important part as regards educating, not only the public, but the fabric and ready-to-wear industries as well, on the benefits of new finishes. Close contact between the store and the processor in the early stages of promoting a new development is vitally important. Once the retailer is convinced that a finish has real value and will help him toward mark-ups and increased volume, he naturally does everything possible to promote it. His effort takes two main directions, both helpful to the processor: First, he urges the finish on his sources of supply; that is, the fabric and apparel divisions; and second, he promotes the new finish to his customer.

The policy of introducing a finish through the retailer also has a psychological value, in that it gives the retailer the sense of being a co-discoverer of the method, which obviously stimulates his readiness to promote it. Still another advantage of selling the finish first to the retailer is that the stores are ready and willing to carry the financial burden of promoting the method, once they are convinced it really has sales value for them.

Measured by the example of the Neva-Wet finish, which has been signally successful at the promotional end, and which now is being applied to a wide range of textiles, it would seem that a real opportunity lies ahead for those finishes which are sold first to the retailer and only indirectly to the trade, though indeed that implies a serious lack of alertness and open-mindedness on the part of the fabric and apparel divisions. Selling the customer's customer is an accepted method of vertical merchandising, but usually this is supplementary to selling the customer himself. The significance of the new departure lies in the fact that in the original approach the fabric and ready-to-wear divisions were subordinated, not to say ignored; and it is a development that merits close observation both by the processors and by their "first" customers.



Saving Steam

WITH CONDENSING AND COOLING EQUIPMENT

By Charles L. Hubbard

WHEN the generation of power alone is considered, it is usually more economical to operate a steam plant condensing than non-condensing. It is essential, however, in order to determine whether the installation of condensing and cooling equipment is warranted in any given case, to compare the saving in steam consumption with the overhead charges on cost of additional equipment. Also it is necessary to take into account the supplying of condensing water from various sources, including the use of cooling towers and ponds. It is of interest to note in this connection that some of the most important cooling installations have been made when low-pressure turbines and cooling towers or ponds have been used in connection with the old non-condensing engines, thus practically doubling the power output with the same boiler-room equipment.

While the water rate of prime movers varies considerably with size, steam pressure, temperature, etc., Table I gives the approximate ratios for steam consumption, non-condensing and condensing, for the average operating conditions found in textile mills. If we know the actual water rate in any given non-condensing plant, the reduction to be expected by the installation of condensing equipment may be estimated with a fair degree of accuracy by means of this table. If the necessary data are not at hand, the figures in Table II may be employed for approximate work. These are based on an initial pressure of 150 lb. (gage), and are for saturated steam.

Computing the Savings

In computing the saving by the use of a condenser, two other important factors must be taken into consideration besides the reduction in water rate. They are the overhead charges on the condensing equipment and the cost of cooling water. These items must be deducted from any saving in fuel, due to a lower steam consumption, before the actual advantage of condensing can be determined. Estimates for the additional equipment and its installation are easily obtained from contracting engineers making a specialty of this class of work.

The cost of cooling water will depend on the location of the plant with regard to an ample supply; that is, whether the water can be obtained in sufficient quantity from a pond or river for the cost of pumping; or whether conditions are such that all, or a considerable part of the supply, must be purchased; or whether the amount which can be obtained without undue outlay is less than that required.

Originally, most of the older mills were dependent upon hydraulic power; and where they have added steam for increased power or greater stability, there will usually be ample water available for condensing purposes for the cost of pumping. With the advent of steam and electricity, textile mills have been located with reference to controlling factors other than water power; therefore in many cases streams of comparatively small size, supplemented in some instances by connection with city mains, and by artesian wells, are depended on to furnish water for both condensing and process work. Under these conditions, the cost of cooling water may overbalance any gain which may be obtained by condensing, unless this water can be cooled to a certain extent so as to be used over and over again. This may be done by the use of cooling towers or ponds, methods which will be described in some detail in a later article.

Amount of Water Required

The amount of cooling water required depends upon the weight and pressure of the steam to be condensed, the initial and final temperatures of the cooling water, and the type of condenser. While this may be accurately computed for any given set of conditions, it is customary to base it on the weight of steam alone for most approximate work, allowing from 20 to 40 lb. of cooling water per pound of steam for engines and 50 to 100 lb. for turbines. These figures are for surface condensers, and may be reduced 20% for jet condensers. When planning to use a cooling tower, it is best to employ the maximum figures in making estimates, because the initial temperature of the cooling water will ordinarily be somewhat higher than when taken from a stream or pond.

TABLE I. Ratio of steam consumption per unit of power

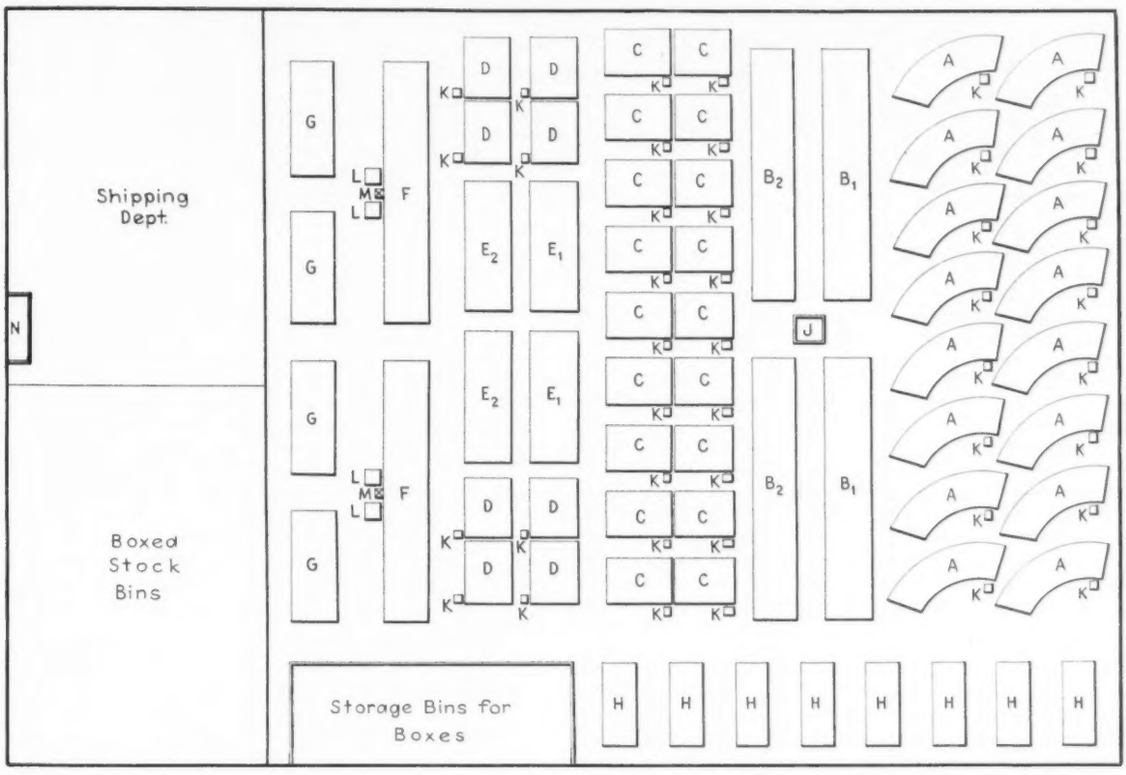
Type of Prime Mover	Non-Condensing	Condensing
500-kw. turbine	1	0.51
1500-kw. turbine	1	0.53
3000-kw. turbine	1	0.54
Simple two-valve engine	1	0.80
Simple four-valve engine	1	0.75
Compound two-valve engine	1	0.70
Compound four-valve engine	1	0.64
Uniflow engine	1	0.75

TABLE II. Steam consumption of non-condensing equipment

Non-Condensing Turbo-Generators		—Non-Condensing Engines—	
Capacity	Lb. of Steam per kw.-hr.	Type	Lb. of Steam per i.hp.
500 kw	31 to 38	Simple two-valve	30
1,500 kw	27 to 33	Simple four-valve	28
3,000 kw	25 to 30	Compound two-valve	23
		Compound four-valve	22
		Uniflow	20

EFFICIENT DEPARTMENTAL LAYOUT INSURES CONTINUOUS FLOW OF GOODS IN

Hosiery Finishing



Layout of finishing department: A, classifiers' tables; B1 planning dept. tables for classifiers' work; B2 planning dept. tables for pairers' work; C pairers' tables; D folders' tables; E1 stampers' tables; E2 stampers' tables for finished work; F boxers' tables; G tables for boxed goods when finished; H press menders' tables; J dumbwaiter; K individual trucks; L work tables for box stampers; M box stamping machines; N elevator.

By Milton M. Abrams
Ajax Hosiery Mills, Phoenixville, Pa.

MAXIMUM efficiency in finishing hosiery can be obtained only if the goods pass from operation to operation in a continuous straight-line flow. To obtain this flow, proper departmental layout, with each operation located in its natural sequence, is necessary. The accompanying illustration shows a layout which satisfies these requirements, utilizes every possible bit of space without overcrowding or congestion, and segregates each operation.

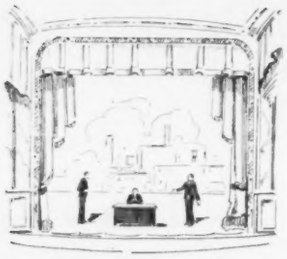
In this particular layout, the pairing operation has been divided into classifying (or what is sometimes called pre-examination) and pairing. A special table is used in this classifying operation, and at this point the work is separated into causes of throwouts.

The work is sent from the boarding department to the finishing room on a dumb-waiter *J*. It is taken to what is termed a planning center and distributed from this point to the various operators. The classifiers secure their work from one of the tables *B1*; and when the work is finished, they return the completed lots to the other table *B1* and then receive additional lots to classify.

The pairers, working at tables *C*, receive their work from the tables *B2*. When their work is completed, it is returned to tables *B2*; and from these tables the stampers, working at tables *E1* obtain their work. When their work is finished, the stampers place it on tables *E2*.

The folders, working at tables *D*, take their work from tables *E2*; and when the lots are finished, the boxers, working at tables *F*, take their work directly from the folders' tables. The box stampers, working on machines *M*, use tables *L* to pile the boxes on as they finish stamping them. The lots which have been completely box stamped are placed on tables *G*, and from there distributed to either the box stock bins or the shipping department.

The auxiliary operations, namely, press mending, latching, and latch mending, are placed along the side of the room on tables *H*. Alongside of each classifier, pairer, and folder is a work truck *K*, which is on rubber-tired, ball-bearing roller casters. In this truck is placed any lot which is not being immediately worked upon by the operator. These trucks can be shifted from department to department if necessary. This system tends to keep a neat department and the work is displayed only when it is actually being inspected on the table.



Before and After

DRAMA IN FOUR ACTS SHOWS A SURPRISE EFFECT OF NRA CODE

THIS is no editorial device to prove a theory. The story is based on facts and we wish that we could give the actual cast of characters, but that, of course, would not be fair. However, we'll do the next best thing and leave the plot unchanged, merely juggling names and putting some false whiskers on the figures.

ACT ONE

The curtain rises on the office of the president of concern A. Grouped about a table are the PRESIDENT, TREASURER and SALES MANAGER. The time is a morning in 1932.

TREAS. Well, we go into the red again this month and that means for the year so far. We can't keep this up forever.

PRES. *(turning to Sales Manager).* Prices are terrible. What's the whole story?

SALES MGR. You know most of it, but I'll tell you just what we're up against. We do about 20% of the business in our line, we're the largest in the field, and even our customers tell us that we turn out the best product. Normally we get prices about 5% higher than our competitors, because our quality is better, and the others pretty much let us set the lead in price changes. Lately, however, there hasn't been anywhere near enough business to go around and all these smaller competitors of ours have been having a grand price scramble among themselves. It isn't a question any more of just cutting below *our* prices; they're cutting each other's throats now. First one chisels wages and cuts prices and then another does the same; and so on around the circle. Unless we watch out, our prices are 'way out of line. We've had to keep on dropping quotations so that we are only about 5% above the others, because we simply don't get any business to speak of if we are 10 to 15% higher.

TREAS. *(grimly).* We have an efficient plant. I suppose that we could chisel wages, duck our quality a bit, and beat that gang at their own game.

PRES. I'd hate to do that. We've been decent to our help and we've paid fair wages, and there isn't any question that we have the best workers in our line. It's been good business for us, too. If we put the screws down on them now we might as well kiss good-bye to some of the workers and we'll lose something else—call it good-will or whatever you want. We might duck on quality for a time and get away with it, but we'd be found out before long. This depression seems to last forever, but I think we'd better stick it out on the old lines as long as we can.

TREAS. I guess you're right, but I get the horrors these days every time I look at the books.

ACT TWO

It is summer, 1933. The scene is the same as in Act One, and the same characters are present.

PRES. I've just pulled in on the sleeper from Washington and the code is going through. Am I happy! The wage differential between ourselves and our competitors has been practically wiped out. We will continue to pay a little more than the others because our workers are more skillful, but that's beside the point. Under the new line-up our costs will be pretty nearly the same as the others. In voting for the code, our competitors—and they did it with their eyes wide open, too, to get us all out of the mud—our competitors, I say, handed us a prize plum. Everybody knows our stuff is better than the others', and with prices about the same we'll have a cinch and do a lot more than 20% of the business.

TREAS. *(doubtfully).* It sounds almost too good.

SALES MGR. *(with enthusiasm).* It's grand. Tomorrow I'm going to start all our salesmen on a swing around their districts telling the customers that they can now buy *our* stuff at about the same price as the others'.

ACT THREE

The scene and characters are unchanged. The time is early November, 1933.

PRES. *(gloomily).* Something seems to be wrong. We aren't doing anywhere near as well as I thought we would under the code.

SALES MGR. I've been out in the field for two weeks finding out what it is all about, so I asked the treasurer to bring up the sales figures.

TREAS. *(reading from report).* For about a month after the code went into effect our share of the business increased, reaching about 30%. Then something happened and we began to drop. As far as we can estimate, we are now doing only about 17% of the business. In the *old* days we did 20%.

PRES. I can't understand it.

SALES MGR. Neither could I 'til I dug out the facts. This may sound foolish, but it isn't. In the past our competitors were content to admit that ours was the best product and they got their business through lower prices. When the code went into effect they drifted along as usual until they found that we were running away with most of the orders. Then they—I mean the individual concerns of course—did some thinking. With prices about equal they saw that they would have to sell on quality and they have been wise enough to supply their salesmen with ammunition. More than one customer has told me of a competitor coming in with such things as photomicrographs, test figures, and a lot of other data to prove the quality of the product.

PRES. *(amazed).* Does that mean that they have us licked on quality?

SALES MGR. Not at all. They've improved quality, but we still have the bulge. I may be to blame, but in the past all that was necessary was for our salesmen to *talk* about our quality; we didn't have to prove it, since about every one—even our competitors—sort-of took it for granted that ours was the best stuff. The way things stand now, our competitors have been forced to supply their salesmen with something to sell besides price. While they actually haven't tried to prove that their product is better than ours, their salesmen are out presenting facts about the quality of *their* merchandise. Of course a number of customers check up and know exactly how our stuff compares with the others', but lots of them don't. To the latter, our competitors' facts look beter than our talk and we're taking a trimming.

PRES. Hadn't we better do something similar ourselves?

SALES MGR. We certainly should. I suggest that we have a meeting right away with the heads of the production, purchasing and advertising departments, and with the laboratory chief. We want to get everyone thinking of what *proof* we can give the salesmen that we turn out something that no one can beat. Let each one dig up what he can and we'll have a later meeting to put the facts in such a form that the salesmen can use them.

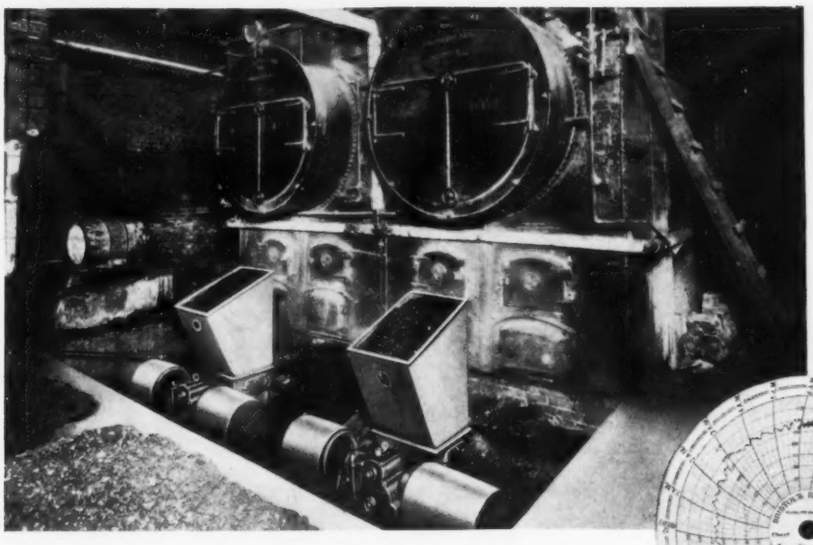
TREAS. *(without cheer).* I hope it works, but it's one of those "theories." We all thought the code was great, but look where we are now.

ACT FOUR

The time is Jan. 5, 1934. The SALES MANAGER stands in the doorway of the president's office. The PRESIDENT is seated at his desk.

SALES MGR. *(grinning).* The boys have been shooting the sales ammunition we all got together—laboratory, production and purchasing facts—and it works. We have our share of the business back again and more besides. Someone even caught the treasurer smiling the other day! (EXITS.)

PRES. *(musing).* The older I get the more I wonder how much I do know. Code or no code, I knew that we would always have competition, and that there would always be price considerations, but I never thought that what seemed like such a "gift" to us would make us work harder than ever on the quality proposition.



Automatic coal burners installed in boilers of W. B. Davis & Son

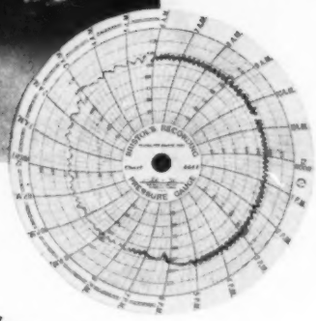


Chart showing regularity of steam pressure particularly during hours of production

HOSIERY MILL REDUCES

Power Costs

WITH AUTOMATIC COAL BURNERS

By W. B. Davis
W. B. Davis & Son, Fort Payne, Ala.
(As told to J. F. Branagan)

A CAREFUL study of our manufacturing costs indicated that a proper redesigning and equipping of our boiler fueling system would effect the greatest single economy in our operating expenses. Consequently, in addition to minor changes, we installed automatic coal burners in all of our boilers. As a result, we have been able to bring our boiler-room costs in line with costs in other departments where we had already reduced expenses by increased operating efficiency.

At the time the purchase of the equipment was contemplated we had not heard of any installation in the hosiery industry of the particular type of burner under consideration, but had evidence of the economies realized with it in other industries. Because of the unusual steam requirements in our plant, it was with some hesitation that we decided upon an investment in the equipment. We questioned whether any mechanical device was sufficiently sensitive and flexible to handle in a suitable manner the periodic and extremely sudden demands for steam in our dyehouse. To our pleasureable surprise the new equipment accomplished this and even more satisfactorily than our most efficient firemen.

Our entire installation consists of eight Iron Fireman automatic coal burners. These fire our power boilers, heating boilers, water-heating boilers, and our residence heating plant. Steam for our power plant is supplied by two 150-hp. return-tubular boilers on which a pressure of 150 lb. is maintained. The equipment in the dyehouse makes recurrent and instant demands for steam. This call comes five or six times each operating hour. The response of these burners is so swift that the moment this demand is made the fires come up to their highest efficiency in less than a minute from the time the call is made upon them. Timed observation and Bristol recording meter charts show clearly how sensitive is their response. The charts also demonstrate a constant maintenance of sustained pressure from 9 a.m. to 5 p.m.—our hours of production—which could never be so evenly regulated with manual firing.

Another meritorious feature of the automatic burners is the complete absence of smoke and dust. Cleaning of the fire boxes is now a much simpler matter, since the bulk of the hard, fused clinkers is only about one quarter of that of ashes from the hand-fired grates. In the periodic cleaning of the fire boxes and rebuilding of fires we save considerable labor and have no problem with welding of clinkers to the fire walls, which are clean and smooth at all times. No grates are used, of course, with these automatic coal stokers. Hand firing of the boilers, and a systematic cleaning of the grates, formerly required the full labor of two men. At present only the part time of one man is needed for the filling of the hoppers.

At the time the installation was made early in 1931, we were informed that the cost of maintenance would approximate 5% annually. During the first 2½ yr. of operation not one cent was spent for maintenance. Since then the expense has been less than $100. Our cost records show that the saving in fuel is well in excess of 50%. We now use approximately 60% as much fuel as before, but burn a slack coal which costs us less per ton than the coal used when the boilers were hand-fired.

The improvements shown during the winter months in our plant heating have been equally gratifying, but of rather a different nature. Maintenance of a sustained, even temperature in the plant has increased the efficiency of our workers. We have approximately 1,000 employees, and the properly regulated atmospheric temperature in which they now work has proved to be a form of health insurance. A more regular attendance and lower labor turnover have resulted from the greater comfort and higher morale of our employees.

Preventing Defects

IN DYEING SILK AND RAYON HOSIERY

By George H. Clifton

PRECAUTIONS which the dyer must take to avoid streaks, spots, and chafe marks in dyeing silk and rayon hosiery were discussed in a previous article (TEXTILE WORLD, June, 1933). Two other defects which are often attributed to improper treatment of the goods in the dyehouse are uneven shades and holes. In many cases the dyer can prove that he is not responsible for these faults; in others, he must shoulder the blame. In the following paragraphs will be discussed some of the more common causes for uneven shades and holes and the measures the dyer can take to correct or prevent them.

Shade variations known as two-tone effects are perhaps the most troublesome of the defects encountered in full-fashioned hosiery. The chief causes of two-tone have been found to be as follows: Difference in nature or color of silk, use in the same stocking of two lots of silk, use of silk which has been in storage for some time with resultant oxidation of the silk itself, a difference in the number of courses in the leg and foot, pronounced difference in twist, and difference in size of thread. The dyer is in no way responsible for two-tone effects due to any of these causes and, unfortunately, he can do little to remedy it, but can only take pains not to make it worse by improper degumming and dyeing methods.

Uneven Shades

On the other hand, uneven shades, as distinct from two-tone, can be due to insufficient scouring or degumming and to poor choice or faulty application of dyestuffs. Treatment for 20 min. at the boil with a solution of soap, sulphonated oil, or other penetrating agent, will often improve the appearance of the hosiery. Stripping and redyeing may be the only recourse in severe cases. A thorough scouring or boiling-off of the goods and use of level-dyeing colors are requisite to even dyeing. In toning silk hosiery with mercerized cotton tops, it usually is permissible to add acid or neutral dyeing colors to the original bath to bring the silk up to shade; on the other hand, it is preferable to employ a fresh bath when the cotton needs toning, adding salt, if necessary, only after the goods have been run for 15 to 20 min.

Blotch marks are similar to streaks; and the causes, remedies, and preventives are much the same. Blotches may appear also if the hosiery, while in the wet state, comes in contact with dirty equipment. Cleanliness is essential, therefore, in the case of extractor baskets, troughs around hosiery forms, and other surfaces against which the goods may rest or rub.

Causes of Holes

More often than not holes in silk and rayon hosiery are caused by rough edges on cones, use of rusty knitting needles, destructiveness of moths or beetles sometimes found in bins for storing gray goods, or other conditions beyond control of the dyer. In knitting, for example, a thread sometimes is partly cut by the needle and the loop is held only by one or two fibrillae. The damage remains invisible until the stocking is pulled on the board. Here, if the cut thread is in the ankle where there is considerable stretching, the loop will break and leave a tiny hole which may escape detection when the goods are inspected. If the broken thread is in the boot, where there is less stretching, there will be no hole, but a weak place, which at the first pull will break and start a run. Again, if cones of yarn are handled carelessly, they may get chafed around the edges without actually cutting through the thread. When the chafed thread is knitted into hosiery, the tiny filament remaining may break while in processing and start a hole or run.

It is not enough to blame the dyer for the holes, rather no stone should be left unturned until the real cause is found. In fact, it is seldom that mechanical mistreatment in the dyehouse is so severe as to cause holes; however, as a precaution, all equipment should be inspected periodically for the presence of rough surfaces.

On the other hand, silk hosiery is tendered occasionally by permitting it to come in contact with detergents or stripping agents in dry form or in concentrated solution. It is essential, therefore, that all chemicals which have a destructive action on the fibers be diluted before they come in contact with the hosiery. Precautions should be taken also that such chemicals are not allowed to spatter on the goods through careless handling.

The chemicals used and the extra processing to which hosiery is subjected in stripping and redyeing are likely to tender the yarn and lead to the formation of holes. Particular care is necessary, therefore, when goods must be rehandled in the dyehouse. Finally, rust spots, due to any of the causes mentioned in the earlier article, may, upon ageing, or in contact with hydrogen peroxide, lead to deterioration of the fiber and consequently to holes.

Multi-Color Damoisette

A FABRIC OF FRAGILE BEAUTY FOR EVENING WEAR

By Benjamin D. Blackman

[*For description, see following pages*]

Multi-color brocade effect on burned-out ground, which gives lacy appearance

CHARACTER in a fabric is achieved by the correctly balanced combination of weave-design, yarn-texture, color. The manipulations of the fabric stylist determine for each cloth its place in the fabric firmament.

It is extremely difficult in cold type to do justice to the shimmering beauty of the multi-colored damoisette. It is a cloth of "fragile beauty," these words truly describing the essence of the fabric, with its colorful gleam of a printed rayon brocade against a dull silk sheer background. It is largely the fragility which sets this fabric apart from all other fabrics in the extensive family of novelty cloths.

But here we have the all too common paradox, a beautiful fabric of limited commercial value.

Let us analyze the cloth and then describe the various operations essential to its fabrication. Our analysis shows the following construction details: Warp, 44 in. in reed, 45/2/1 reed, 3-thread 13/15 crepe twist, two right and two left. Filling, 128 picks per inch of 3-thread 13/15 crepe twist and 150-denier viscose-process rayon. Disposition of filling in one weave repeat:

2 picks 3-thread 13/15 right twist
2 picks 150-denier viscose
2 picks 3-thread 13/15 left twist
2 picks 150-denier viscose
2 picks 3-thread 13/15 right twist
2 picks 150-denier viscose
2 picks 3-thread 13/15 left twist
2 picks 150-denier viscose

We find that the dull silk sheer background is fabricated with a 3-thread 13/15 silk crepe-twist yarn in both warp and filling, woven tabby. A glance at the weave design shows that the colorful printed rayon brocade is produced by an added shuttle of 150-denier viscose-process rayon weaving every other two picks in a 5 and 1, 1 and 1 filling twill with a step-over of three warp ends.

A glance at the illustrated weave and a flash-back to our early lessons on the principles of cloth construction will make clear to us that the loose 5 and 1, 1 and 1 weave of the soft rayon filling yarn will naturally "pop up" on the face of the fabric when it is used with the tight weave of the crepe-twist yarn. This provides a faint velvety surface without resort to the use of lancets or any of the various devices or methods used to produce the more pronounced velvety-type fabrics.

The cloth is woven on a 4x1- or 4x4-box loom. The auxiliary machinery and all procedure in the weaving plant are the same as in the fabrication of the various staples—crepes, georgettes, chiffons, etc.

First in the series of converting operations is the boil-off. The cloth is immersed in a boiling solution of water and soap, for a period of about one hour. This is usually sufficient to remove from the fabric any trace of grease and grime, as well as the natural gums and throwster's tint.

The piece is then dyed in the rope form on an ordinary overhead-reel type of dye box. The coloring matter employed in the dyeing of this particular piece is possessed of two distinct characteristics. First, it is a union dye, a dyestuff which "pulls" equally well on silk and rayon, permitting a single-bath dyeing. Second, it is a dischargeable dyestuff. As such, it is susceptible to the action of a discharging agent, which is applied to the piece in the printing machine, as explained later.

After the dyeing, the piece is well rinsed in a number of warm waters in order to remove any trace of loosely adhering dyestuff. The piece is then dried, rolled on a wooden cylinder, framed to remove any creases, and delivered to the print shop.

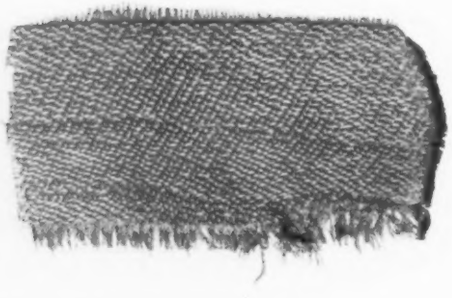
Each color in the design is engraved on a separate copper cylinder, about 16 in. in circumference. Besides these, a roller is also engraved for that portion of the design which will be burned out, as indicated in the photograph by the sheer background. The shallow color pan beneath each color roller contains the dissolved dyestuff, a gum carrier which is mixed with the dye solution, and a quantity of a discharging agent—hydrosulphite.

The roller which is engraved with that part of the design which is to be burned out has a color pan beneath it also; but instead of a color paste, it contains a solution of gum and aluminum chloride. The gum is, of course, the carrier; while the aluminum chloride is the burning or carbonizing agent.

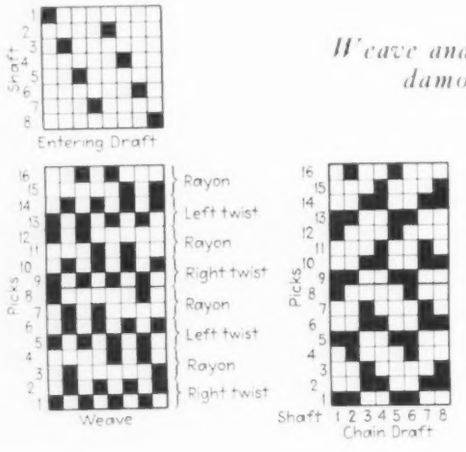
The cloth is printed on the back and dried. It is necessary to print on the back in order that the carbonizing agent may attack the rayon binders most effectively. Once the binders have been burned away, the rayon is easily removed.

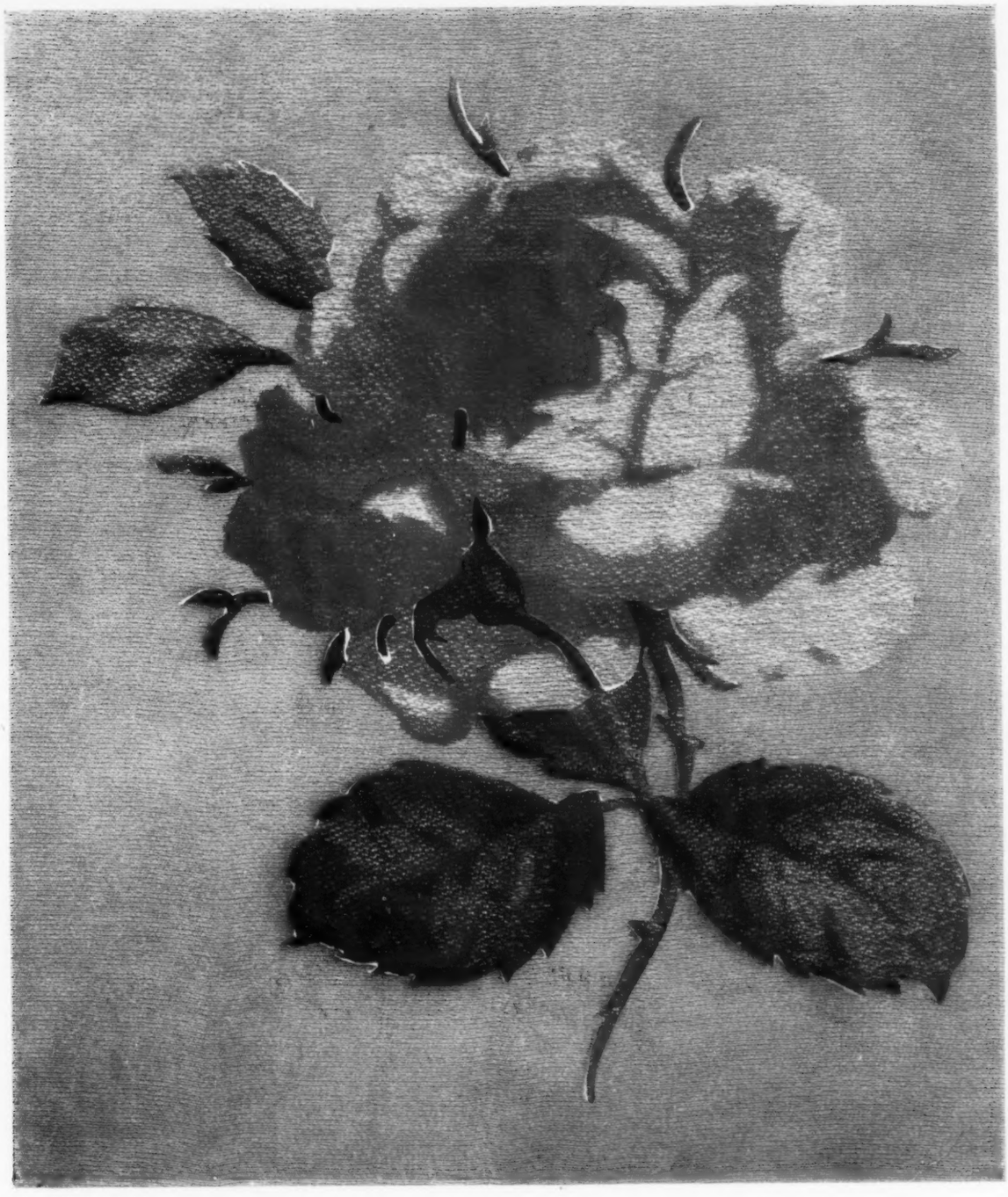
Since this cloth is printed on the back, good penetration is essential, in order that the color on the face may be presentable. This penetration is achieved by the use

Cloth previous to printing



Weave and drafts for damoisette





A large floral in varying shades of two colors

of quite a thin color paste in conjunction with a fairly deep engraving.

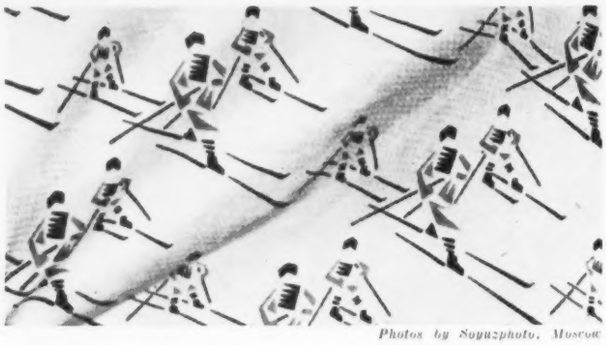
After being printed and dried, the goods are "aged." In this process, the cloth is run into an iron chamber, in the full width, and exposed to the action of a large volume of steam. In such an atmosphere, the energy of the hydrosulphite is released. The action of the hydrosulphite (which is the discharging agent previously mentioned) on the dyed ground serves literally to erase or destroy that dyestuff with which the ground has been dyed. The dyestuffs which were mixed into the printing pastes were chosen for their ability to withstand the action of the hydrosulphite.

When the ageing operation has been completed, we find that the dyed ground has been removed in the printed portions, and in its place remain the printed colors.

The piece is then run, full width, into a hot box, in which a dry heat is maintained at a temperature of approximately 190° F. At this temperature the aluminum chloride carbonizes the rayon in those parts where it has been printed.

After this operation, the goods are washed to remove the printing gums, excess dyestuff, and the incinerated rayon. The pieces are then dried, passed over a steam frame to remove the creases, and finished.

Hiking, sailing, etc., are healthy ways to spend leisure time. Here they are elements of design.



Photos by Soyuzphoto, Moscow

Design based on a popular winter pastime—This pattern has a definite top and bottom

Russian Prints

CARRY LOCAL PROPAGANDA

"MAKSKI designski to carry propagandovitch!"—Russian is not always so easy to translate.

This was the order of Comrade Textilesky who was in charge of the five-year fabric merchandising plan. Comrade Artistovitch, who had studied art in New York some years before, spent many sleepless nights. He could make many repeats ad lib of rosettes, triangles, chevrons, etc., but they never had looked like propaganda—except perhaps of a doubtful sort for his art teacher.

Artistovitch had met propaganda in the form of slogans "Down with the Capitalist," "Stalin Forever," and others not so accurately quoted. These he put in colored lettering, a la Victorian wall mottoes, and submitted to Textilesky.

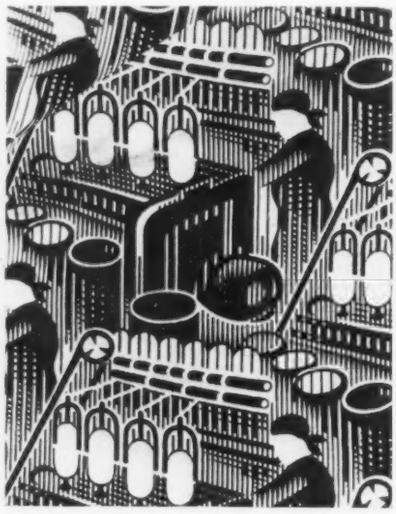
"Impossible," said the Comrade. "It is too much to ask any woman to turn herself into a sign board even for the cause. If you can't do better, off you go to Siberia."

The thought gave Artistovitch a chill that night and in the feverish dream that followed he had visions of pictorial textile designs he had seen in New York store windows five years before. These showed jazz bands in neat repeats, skyscraper piled on skyscraper in impossible angles, buttons and thread in hopeless tangle, gnomish human figures working on steel girders in dangerous zig-zags.

On awakening he went to work—first collective and mechanized farming, with tractors, street scenes, happy well-fed workers; then industry, textile machines in decorative repeats, steel works belching smoke; then recreation, with happy Russians on skiis or striding topsy-turvy over angular mountains or sailing little boats—each design conceived to guide, impress, or enthuse the Russian user.

He avoided Siberia, and some of his products are pictured on this page. They make interesting compositions but most of them fail to meet the standard American requirement that textile prints have no definite "right side up." These new Russian prints must be viewed from one direction to make sense. This leaves them suitable for hand dress-making but complicates mass-production of garments. They are decorative but indicate a marked step away from the distinctive and unique peasant art which has been the prime asset of previous Russian textile products.

Polychrome of Soviet construction work, merging countryside, villages, etc., and factory building. Again the tractors which epitomize progress.



Cotton slubbing frames used as design motif with the woman operative in background.

"Kolkhoz" design showing old individualist peasant slaving over the plow in contrast with young girls gaily operating tractors under collectivism.

Textile World Analyst

YEAR ENDS WITH ALL TEXTILE TRENDS BRIGHT

1933 Activity 25% Above 1932: Textile mill activity during November, 1933, the latest month for which statistics are available at this writing, was approximately 2½% under the corresponding month last year, and about 4% under the average November during the eight-year period 1924-31, roughly assumed by us as "normal."

Activity for the first 11 months of 1933 was about 28½% above that for the corresponding period of 1932, and 4% above that for the first 11 months of the "normal" period referred to above.

In view of the curtailment put into effect in certain branches of the industry in December, it seems probable that these two percentages will be reduced for the calendar year, and that the estimate made elsewhere in this issue is approximately correct, namely, that 1933 activity was roughly 25% over that of 1932, and about the same as, or a little higher than, the "normal" year previously mentioned.

CERTAINLY, the record of textile activity in 1933, summarized above, is one in which the industry can take considerable gratification. It exceeded even the most optimistic expectations entertained at the end of 1932. It reduced textile unemployment to a relatively unimportant phase—and set a mark for other industries in the country to shoot at.

Furthermore, the price policies of the industry during the year reflected a higher order of merchandising sanity than had been noted for some time. True, conditions were more propitious, but there were opportunities for serious errors of judgment which, fortunately, were largely absent.

The year closed with the general price trend firm. Taking cotton products, as an example, it will be noted in Tables I and II that the November average in both carded fabrics and carded yarns was maintained in December. In fabrics, this maintenance was the result of absence of week-by-week fluctuations; in yarns, it was due to the averaging up of a rather sharp falling-off in the first half of December followed by an abrupt recovery.

TEXTILE WORLD's price index numbers for December showed few changes from November. Raw cotton, which fluctuated narrowly during the month, gained one point in the index as compared with November; gray goods dropped a point; yarns and colored goods were unchanged. In the wool group, raw wool continued its steady climb by a gain of two points; tops and cloth remained stationary; worsted yarns gained two points. Raw silk sagged another point.

Of particular interest at the year-end was the trend toward production regulation by several branches of the industry, with the aid of NRA codes. Most students of the situation have agreed that the curtailment programs put into effect in December were necessary, if degeneration was to be averted; and, more important still, that the provision for prompt adjustment to changing conditions, within specialized groups of each division, represented a safety-valve which should automatically aid in preserving a balance.

It is recognized that spasmodic and radical curtailment programs are not the desired end, but rather that a continuing adjustment to current changes should produce a steadiness which is more satisfactory to both employers and employees.

On this subject of curtailment, the following extract from the annual market letter of Scheuer & Co., New York, is of interest:

"Production limitation alone will not cure the basic ills of this industry. Curtailment would have to be carried to absurd lengths if it, in itself, were to accomplish the uniform results expected of it. . . . The recent very necessary ruling of the Code Authority limiting December operations to 60 hours maximum was a rough-and-ready attack on an emergency situation. Obviously, further curtailment, whether it be warranted or not, creates additional costs and makes necessary further increases in prices. During the past six months we have advanced many basic gray prices roughly 100%. We cannot move too rapidly in this direction if we hope to maintain our position in consuming markets. . . .

"In sum, we dare not burden curtailment with the full load; we must make corrections elsewhere; we must inventory all our production machinery and analyze its economic utility. We must critically examine our marketing methods, our commission house system, our converting system, our job finishing and corporation finishing activities, our direct mill sales methods, our brokerage system, our vertical and horizontal production and sales organizations—in a word, all our accepted procedures. We must pass on the economy and efficiency of all these activities; they should not be taken for granted. Ours is a very old industry which has grown in patchquilt fashion and there is an obligation to bring ourselves up to date. It is dangerous to avoid the issue. All activities and functions are up for study."

TABLE I. CARDED FABRIC MARGIN

Date	Margin in cents	Date	Margin in cents
July, 1931.....	15.3	April, 1933.....	11.4
October, 1931..	13.3	May, 1933.....	15.6
January, 1932..	12.1	June, 1933.....	20.6
June, 1932.....	9.5	July, 1933.....	23.4
July, 1932.....	9.1	August, 1933...	21.4
August, 1932...	11.1	September, 1933	19.5
September, 1932	13.0	October, 1933...	19.1
October, 1932..	12.6	November, 1933	17.7
November, 1932	10.7	December, 1933	17.6
December, 1932	10.6	Dec. 6.....	17.4
January, 1933..	10.4	Dec. 13.....	17.6
February, 1933.	10.1	Dec. 20.....	17.8
March, 1933...	10.2	Dec. 27.....	17.5

TABLE II. CARDED YARN MARGIN

Date	Margin in cents	Date	Margin in cents
July, 1931.....	12.6	April, 1933.....	10.1
October, 1931..	12.7	May, 1933.....	12.3
January, 1932..	10.9	June, 1933.....	15.4
June, 1932.....	9.9	July, 1933.....	23.2
July, 1932.....	9.6	August, 1933...	23.5
August, 1932...	9.7	September, 1933	21.3
September,1932	12.8	October, 1933...	20.0
October, 1932..	12.3	November, 1933	18.4
November,1932	11.3	December, 1933	18.5
December, 1932	10.9	Dec. 6.....	17.8
January, 1933..	10.2	Dec. 13.....	17.7
February, 1933.	9.4	Dec. 20.....	18.9
March, 1933....	9.8	Dec. 27.....	19.6

Textile World's Price Index Numbers

Date	Cotton Index Numbers: Cotton	Yarns	Gray	Colored	Wool Index Numbers: Wool	Tops	Yarns	Cloth	Silk Index: Raw Silk
July 31, 1914..	100	100	100	100	100	100	100	100	100
Jan. 1933.....	50	72	67	100	76	85	105	125	29
Feb. 1933.....	48	68	65	95	75	83	102	125	26
Mar. 1933.....	49	70	66	96	75	84	102	125	26
Apr. 1933.....	56	74	72	97	78	90	104	125	29
May 1933.....	69	93	94	101	104	113	116	169	34
June 1933.....	76	109	117	112	122	139	135	192	47
July 1933.....	86	138	135	131	134	153	156	201	50
Aug. 1933.....	110	170	151	147	136	157	159	217	41
Sept. 1933	111	156	149	147	144	177	165	222*	41
Oct. 1933.....	110	152	141	144	148	179	175	222	36
Nov. 1933	114	146	132	144	150	179	175	222	33
Dec. 1933	115	146	131	144	152	179	177	222	32

Note: All cotton indices since Aug. 1 include processing tax. * Revised

THE PERSONAL PAGE

Henry P. Kendall, president of the Kendall Co., Boston, speaking at the annual dinner of the sales staff of his company, Dec. 29, warned that unless business adopted some such program as the Swope plan, it would face a government bureaucracy as a permanent fixture in business.

Millard D. Brown, president of Continental Mills, Inc., Philadelphia, has been elected president of the Philadelphia Textile Manufacturers' Association. Other officers for 1934 are: Vice-president, **John E. Bromley,** of John Bromley & Son; second vice-president, **Franklin P. Knipe,** of Walter E. Knipe & Sons; secretary, **William Zimmerman,** of John Zimmerman & Sons; treasurer, **Arthur Otto,** of Jonathan Ring & Sons, Inc.

Sir Charles Gordon, chairman of the board of Dominion Textile Co., Ltd., Montreal, has been elected president, to succeed the late F. G. Daniels. **G. Blair Gordon** has been named managing director.

Cecil C. Finch has been elected president, treasurer and general manager of Broadalbin Knitting Co., Amsterdam, N. Y., to succeed his father, the late **Henry C. Finch. Nelson C. Finch** has been elected vice-president and assistant treasurer.

Herbert S. Morrow recently resigned as Deputy Administrator, NRA, to become vice-president of the Slater Co., of Webster, Mass. Mr. Morrow's responsibilities will be largely in connection with the selling end, and he will make his headquarters at the New York office, 81 Worth Street. He was formerly vice-president of Jos. Bancroft & Sons Co., and prior to that associated with U. S. Finishing Co.

Fred W. Steele has been appointed general manager of Grinnell Mfg. Co., New Bedford, Mass. Mr. Steele was formerly with Dartmouth Mfg. Co. and Booth Mfg. Co. Grinnell has been closed for a year, but the supposition is that it will be reopened.

E. O. Steinbach has been elected secretary and treasurer of Durham (N. C.) Cotton Mfg. Co., succeeding **E. Y. Smith,** who retired because of ill health. Mr. Steinbach was, for the last ten years, manager of the Burlington, N. C., mills of Consolidated Textile Corp.

James W. Cox, Jr., whose resignation as president of Sibley Mfg. Co. and Enterprise Mfg. Co., both of Augusta, Ga., was announced last month, has also resigned as director of Gregg Dyeing Co. and Graniteville Mfg. Co., affiliated with the Sibley and Enterprise groups. These resignations became effective Jan. 1. Pending announcement of his plans for the future, his temporary headquarters will be at Cox & Fuller, 320 Broadway, New York.

Elroy Curtis, now president of Southeastern Cottons, Inc., New York

F. S. Blanchard, Pacific Mills, elected vice-president of Taylor Society

From *Business Week* comes the following gossip: "Rumor No. 3467-A concerning General Johnson: That his eventual successor will be O. Max Gardner, former Governor of North Carolina. Gardner is closely associated with southern textile mills, and also is interested in the rayon industry."

Joseph A. Quinlan has been appointed vice-president and sales manager of Se-Ling Hosiery Mills (formerly Walter Fred Hosiery Mills), Nashville, Tenn., succeeding **T. Walter Fred** who resigned recently.

E. W. Walton, for 12 years secretary, manager and a director of Hickory (N. C.) Hosiery Mills, has resigned, and is succeeded by **G. G. Wyrick,** Mebane, N. C.

J. M. Mackie has been appointed president of Paton Mfg. Co., Sherbrooke, Que., in succession to the late **F. G. Daniels. J. G. Dodd,** former sales director of the company, has been appointed vice-president.

Victor Bowman, formerly with Pacific Mills, has been appointed general sales manager of Mohawk Carpet Mills, with headquarters in New York. He will be assisted by **T. E. Brown,** formerly assistant comptroller of the company. **James D. I. Husband** becomes merchandise manager and will make his headquarters at the plant in Amsterdam, N. Y. **Lester E. Green,** former sales manager, has been in poor health for some time, but upon his recovery he will return to the company in an executive capacity.

Thomas J. McGann has been made vice-president of James Talcott, Inc., factors, New York. He joined the firm in 1899 as an office boy.

V. J. Brennan, formerly associated with the woolen industry in Vermont, has been named president of the new Brookside Woolen Co., Glastonbury, Conn. **Alfred H. Pratt,** connected with the Glazier Mfg. Co., Glastonbury, is now associated with the Brookside Woolen Co.

J. Frank Morrissey has been appointed agent of Grosvenordale Co., North Grosvenordale, Conn., succeeding the late John F. Reardon.

William R. Barnette, who received his textile instruction at the Georgia School of Technology, has resigned from Alabama Mills, Inc., Clanton, Ala., to become agent of the Walcott & Campbell Spinning Co., Gulfport, Miss.

I. B. Covington, vice-president and superintendent, Wade Mfg. Co., Wadesboro, N. C., has been elected president of Pee Dee Mfg. Co., Rockingham, N. C., succeeding **George P. Entwistle.** Mr. Covington will continue as the executive head of Wade Mfg. Co.

A. Henry Thurston, formerly assistant editor of TEXTILE WORLD, and more recently associated with the Department of Commerce, has been appointed Assistant Deputy Administrator under NRA. He had been working with the NRA organization for several months. Mr. Thurston is also Administration member on the code authority for the throwing industry, wool felt manufacturing industry and hair and jute felt manufacturing industry.

Sidney M. Green, for many years a silk and rayon broker on his own account, is now associated with Scheuer & Co., New York, and will make his headquarters at their uptown office, in charge of fabric development.

D. G. Floyd, recently with Lockhart mills in Union County, S. C., has been made superintendent of the Cowpens (S. C.) Mills, to succeed the late W. F. Doggett.

J. O. Williams, who recently resigned as superintendent of Gastonia (N. C.) Thread Mills, Inc., has been appointed superintendent of the Shelby (N. C.) Cotton Mills. **Walter Lineberger** succeeds him in his previous capacity.

John S. Doermer has resigned as superintendent of the Wayne Knitting Mills, Fort Wayne, Ind.

Winder Gary recently resigned as general superintendent of Hannah Pickett Mills, Rockingham, N. C., to accept a similar position with Edna Mills Corp., Reidsville, N. C., succeeding L. C. Coggins, who was killed in an automobile accident in December.

G. G. Wyrick, formerly of Mebane, N. C., has been elected secretary and manager of Hickory (N. C.) Hosiery Mills, Inc., succeeding E. W. Walton, who recently resigned.

H. D. Steadman has been elected secretary and treasurer of Pee Dee Mfg. Co., Rockingham, N. C., succeeding R. R. Simmons, who will continue with the company.

R. C. Watkins, formerly with Cliffside (N. C.) Mills, has accepted a position as superintendent of weaving at Blair Mills, Belton, S. C.

Seth Newsome is now superintendent of the carding division of Unity Spinning Mills, LaGrange, Ga., second shift.

J. W. Price has been appointed superintendent of the Rhode Island Suiting Mills, a division of The Carolina Cotton & Woolen Mills Co., Spray, N. C.

R. H. Kagi has been appointed superintendent of the new mill of Beaunit Mills Inc., Cohoes, N. Y.

J. R. Newell is now superintendent of the carding division of Mandeville Mills, Carrollton, Ga.

W. Gordon McKelvey, Nashville, Tenn., has resigned as assistant secretary and attorney of the Tennessee Manufacturers' Association, after having represented the manufacturers of Tennessee for approximately 11 years. Mr. McKelvey stated that he resigned in order to devote more time to his own business.

J. W. Swiney is now assistant superintendent of the bleachery and finishing division of Fulton Bag & Cotton Mills, Atlanta, Ga.

Obituary

Thomas F. Vietor, aged 62, chairman of the board of Commercial Factors Corp., died at his home in New York on Dec. 17. Prior to the merger with other factoring concerns in 1929 to form Commercial Factors Corp., a subsidiary of C.I.T., Mr. Vietor was the senior partner of Fred'k. Vietor & Achelis, a factoring concern formed more than a century ago by his grandfather Frederick Vietor and Thomas Achelis and continuously operated since that time by descendants of the founders.

William Hetherington, who retired from presidency of Alexander Smith & Sons Carpet Co., Yonkers, N. Y., in 1930, died Dec. 27 at 74 years of age. He came from Scotland 45 years ago and joined the carpet company as a carpenter.

Henry F. Lippitt, aged 78, died at his home in Providence, R. I., on Dec. 28. Mr. Lippitt was associated with the old Manville (R. I.) Co., and when the company was merged with the Jenckes Spinning Co., Pawtucket, in 1923, he became president of the Manville-Jenckes Co. He was elected chairman of the board in 1926. Mr. Lippitt served as U. S. Senator from Rhode Island from 1911 to 1917, he was president of the National Association of Cotton Manufacturers from 1886 to 1889, and he was elected acting president of the Cotton-Textile Institute when the organization was formed in 1926, later serving as chairman of the board.

Henry W. Brown, owner of Homestead Woolen Mills, Dartmouth Woolen Mills, Gordon Woolen Mills in New Hampshire and Black Bear Woolen Mills in Vermont, died on Jan. 1.

Joseph S. Leach, president of S. Gray Co., Walpole, Mass., operator of Walpole Dye & Bleach Works, died Dec. 8, at the age of 73.

Thayer Prescott Gates, superintendent of finishing at Riverside & Dan River Cotton Mills, Danville, Va., died suddenly in Richmond, Va., Jan. 1, aged 53 years. Interment was in Lowell, Mass.

John W. Amend, aged 58, president, treasurer and general manager of Racine Feet Knitting Co., Beloit, Wis., died on Dec. 27. He became the principal owner of the company 26 years ago.

John Wallace, for over 30 years New York representative of the Hampton Co., died in the latter part of December. Mr. Wallace was believed to be nearly 90.

L. C. Coggins, aged 30, superintendent of the Edna Cotton Mills, Reidsville, N. C., was fatally injured on Dec. 3 in an automobile wreck near Elkins, N. C.

Robert E. Buck, aged 52, southern manager of Arnold, Hoffman & Co., Inc., died at his home in Charlotte, N. C., Dec. 10.

William F. Doggett, aged 63, superintendent of Cowpens (S. C.) Mills, died suddenly Dec. 13.

Joseph J. Grayson, aged 57, superintendent of American Cotton Mills, Inc., Plant No. 1, Bessemer City, N. C., died in Charlotte, Dec. 11.

Lewis Blackwell, aged 29, manager of the Greenville (S. C.) plant of U. S. Bobbin & Shuttle Co., died recently as the result of injuries sustained in an automobile accident near Greenville.

Edgerton Heads Southern Industrial Council

Following a conference of southern manufacturers, representing various trade divisions, types and sizes of industrial units, held in Chattanooga, Tenn., Dec. 19, it was announced that the major objective of the Southern States Industrial Council, formed at the meeting, would be to obtain wage differentials for the South greater than 10%. John E. Edgerton, president, Lebanon (Tenn.) Woolen Mills, was elected temporary chairman of the new organization, membership of which will consist of the presidents and secretaries of state and strictly southern trade associations. About 250 manufacturers and buiness executives attended the Chattanooga conference.

Group Considers Export Expansion

A group of 75 textile leaders gathered at the Brown University Club, New York, Jan. 5, for dinner as guests of Samuel C. Lamport of Lamport Mfg. Supply Co. The gathering's interest centered on meeting Japanese competition in foreign trade and broadening our export outlets. Possibility of government cooperation was indicated. Burton K. Wheeler, Senator from Montana, was guest speaker.

For Centralized Work on Design Protection

The National Council on Design Protection, affiliated with the American Arbitration Association, New York, met on Jan. 11, to present a tentative program and to invite suggestions from those attending. The organization proposes to centralize the work of outlawing design piracy which is already touched upon in the trade practice provisions of NRA codes of more than 100 industries.

The Textile Designers Guild of America is taking steps to check the practice which they say exists of foreign design studios bringing to this country a staff of their designers under the guise of visitors.

The National Society of Textile Designers, Frank Headon, executive chairman, met recently and unanimously voted that there should be a minimum price of $30 set for textile designs.

Textile Calendar

Wholesale Dry Goods Institute, Annual Meeting, New York, Jan. 23 and 24, 1934.

Federated Textile Industries, Inc., Annual Dinner, Waldorf-Astoria, New York, Feb. 13, 1934

Second Knitwear Industrial Exposition, Grand Central Palace, New York, Feb. 12 to 16, 1934.

National Knitted Outerwear Association, annual meeting, New York, during week Feb. 12 to 16, 1934.

Underwear Institute, Annual Meeting, Mayflower Hotel, Washington, D. C., Feb. 20, 1934.

Committee D-13 American Society for Testing Materials, spring meeting, Wardman Park Hotel, Washington, D. C. Mar. 8-9, 1934.

Knitting Arts Exhibition, Commercial Museum, Philadelphia, April 23 to 27, 1934.

National Cotton Week, May 14-19, 1934.

Committee D-13 American Society for Testing Materials. Annual Meeting, Chalfonte-Hadden Hall, Atlantic City, N. J., in week of June 25 to 29, 1934.

Southern Textile Exposition, Eleventh Annual Exhibit, Textile Hall, Greenville, S. C., Oct. 15 to 20, 1934.

Honor A. D. Whiteside

The luncheon meeting held Dec. 19 at the Hotel Astor, New York, by the American Arbitration Association in honor of A. D. Whiteside, division administrator of the NRA, turned out to be a great personal tribute to the latter. Many hundreds of the leaders in all branches of the textile industry turned out to honor him. Mr. Whiteside, in his characteristically frank manner, expressed his belief that the NRA had definitely proved to be a success.

Southeastern Merchandise Market in Atlanta

More than 100 exhibitors, including manufacturers of wearing apparel and textiles, have contracted for space in the exhibition-sales structure of Southeastern Merchandise Market, Inc., at Atlanta, Ga., where this organization reports it will open for business on Jan. 29. Original plans were to erect a seven-story building to house this project in Charlotte, N. C.

Ira A. Stone, vice-president of the Royal Mfg. Co., and Edward P. Minogue, formerly with the Bureau of Foreign and Domestic Commerce, are executives of the company.

THIS DEPARTMENT—

offers a new subject for discussion each month and gives readers' comments on problems introduced in previous issues. The subject opened in November is closed and summary of contributed ideas is given on opposite page. Overseers and others are invited to discuss the subject presented under the heading "What of Overseers Who Make Mistakes?" and other questions brought up in the super's talks. Letters accepted and published will be paid for without regard to length. Brevity is desirable.

▼

Overseers'

WHAT OF OVERSEERS WHO

"AT our last meeting," Superintendent Chase remarked, "we were discussing mistakes that operatives make. About three years ago we talked about the usefulness of a fine or bonus to keep operatives from making mistakes. Now a good friend of mine writes and asks 'what about the overseer or superintendent who makes a mistake?' "

"What my friend has in mind, of course," Chase continued with a grin, "is what, if anything, should be done to an overseer or superintendent who does something dumb that costs a lot of money. This comes pretty close to home!"

"Yes, it's pretty close to home," Bill spoke up, "but it seems only fair that we should look at ourselves once in a while. I must bow my head and admit that even overseers and superintendents aren't perfect! But seriously, an overseer or a superintendent can cause a lot more harm than an operative. Suppose an overseer gets careless and has a lot of the wrong stuff made; certainly it's a lot worse than if a single worker makes a 'bull.' My idea is that overseers should be treated in just about the same way as operatives are in any given plant. If workers are fined for poor work, overseers and superintendents should be fined; if there is a bonus plan, the overseer should miss his bonus if he gets careless; and if an operative gets bawled out, the overseer should be bawled out. That makes it fair all around."

"I think Bill is all wrong," Pete replied. "In the first place,

Keeping a Mill Looking Neat

Editor, Overseers' Round-Table:

Keeping a mill looking neat is one of the main cogs in the gear of a well organized plant. The appearance of a mill reflects the very spirit of its management. The neat arrangement of the mobile parts of a department, those tools, trucks, or supplies being worked into the general process of advancement toward the finished product, means greater efficiency. Hardly any superintendent or overseer would advance an argument that a clean, neat, well-kept plant does not add materially to the scheme of getting the very best from the workers. No man whose mental attitude is not to the interest of the company is as valuable as that man whose shop or department is clear of everything but the immediate necessities for the running of his job.

Inspect a mill that is neat and clean and you will find a thin accident report file. Accidents mean insurance rates being adjusted. Hence, a two-fold benefit is derived from the neat and tidy plant. An overseer whose time is so completely occupied that he has no thought for the appearance of his department is either overworked or incompetent, and the superintendent that gives no thought or effort toward this subject is only "sticking his neck out."

The neatness of a plant is just another instance of where the "unwritten law" prevails. Of course an official, when placing a man in charge of a plant, does not put it into so many words that he is to keep a weather eye on appearances. It is just one of many scales on which a man is weighed.

C. E. NICHOLSON,
Cloth Room Overseer,
Central Falls Mfg. Co.

Editor, Overseers' Round-Table:

There are many reasons why a mill should be kept neat, but the following stand out above all others:

Notice the appearance of most successful mills. The employees have strictly enforced rules to keep the floors clean, trucks and bins systematically placed, and windows and painted walls washed regularly. These mills consider this an important duty.

Neatness creates a morale among employees making them desire more perfect work. Goods arranged at the proper place are less liable to be damaged from cutholes, ravel-downs, pick-ups, etc.

Fire is a hazard often caused by greasy waste chucked in a remote, close place, by excelsior-packed boxes left under work benches, and by other accumulating, inflammable material left in the plant.

Neatness is good accident prevention. Greasy floors seldom scoured, wrenches left on the floors of narrow machine alleys, as well as stray bobbins, cause preventable accidents.

Well-kept mills have better sanitary conditions. The trash cans placed conveniently in different parts of the building are kept covered and emptied often. Cuspidors are cleaned and disinfected frequently. Toilets and wash basins are also cared for and clean towels furnished at a nominal cost to individuals.

The fact that the largest and most successful mills stress neatness should be proof enough of its supreme importance.

FULL FASHIONED.

Editor, Overseers' Round-Table:

When every employee knows that he has his bit to perform in keeping a mill looking neat, the task is well begun. Neatness is mainly a matter of habit. Empty cones, bobbins, broken quills and soiled waste should be consigned to proper places (just as peanut shells and candy wrappers are) where they will not congest alleys and at the same time detract from the neat appearance of the room. This system should be clearly explained to each new worker.

Floors should be swept as often as is necessary and should be polished every week. Foremen and fixers should be on the alert to see that all water and oil drops are mopped up promptly. To clean up these spots themselves occasionally, will serve as an example to the other employees and help to prevent accidents.

Operatives in a clean mill are usually neat in personal appearance and they do

Round-Table

MAKE MISTAKES?

overseers and superintendents are in a far different position than operatives. The overseer is paid more than the operative because of his knowledge and responsibility. An operative often makes mistakes through ignorance and should be taught better, but the overseer who makes a lot of mistakes through ignorance simply shouldn't be an overseer. In the same way, a worker may be careless because he or she has not been sufficiently impressed with the responsibility of the job, but an overseer who doesn't realize his responsibilities isn't worth a plugged nickel. I don't believe in fines and such for operatives, and in dealing with their mistakes I think that the best remedy is to take pains in teaching them, with an occasional talk straight from the shoulder where needed. When it comes to overseers and superintendents, I think fines are out of the question and that a terrific verbal dressing down is just about as bad. If a man gets to the position of overseer and hasn't enough brains or sense of responsibility to keep him from making more than the minimum of mistakes, he never will amount to anything and the best thing is to find a new overseer or superintendent."

If you were a superior officer how would *you* deal with an overseer or superintendent who made mistakes?

SUMMARY

NEATNESS IN THE MILL. Approximately 85% of the replies stated that it was sound policy to keep a mill looking as neat and clean as possible. The principal benefits of neatness were said to be the prevention of accidents, better employee morale, reduction of the fire hazard, increased efficiency and better work, and more sanitary working conditions. The proper number of bins and trucks, fresh paint and clean windows were cited as aids to efficiency as well as to neatness. The remaining 15% of contributors believed that there was a tendency in many mills to carry neatness to an extreme, and that, although actually dirty conditions should not be tolerated, a lot of time was wasted by trying to keep a mill looking like a parlor.

much better work than they could do in an untidy place. A. H. R.

Editor, Overseers' Round-Table:

Keeping a mill clean and orderly is not a problem for an overseer who takes pride in his job and his department. A department's appearance reflects upon the man who has charge of such.

It may seem a loss of time to keep a room neat, but it pays dividends in the long run. Let us take, for example, a weaving department: Its looms are kept clean and oiled properly; supply parts are in specially constructed shelves and numbered; filling is stored in a small compartment; lights are always clean to give full and complete illumination; there are cans for sweepings, filling waste and warp waste, and truck bins in which to put cloth rolls coming off instead of leaving them near looms; toilets are kept sanitary and in good running order; corners are painted white and chewing tobacco addicts have their cuspidors at their benches or looms; there is a systematic giving out of supplies to fixers and weavers every week.

Now, do not all these points show to a favorable reaction on the part of all workers employed in said mill? They most certainly do.

Coming to the cost of all these factors in cleanliness, we find there is no added cost. It is simply that every operative, from the overseer down to the cleaner, has a specified quota in keeping the department orderly and clean.

Anyone will agree with me that it boosts production and efficiency to have a room neat and systematic. When a loom is cleaned properly and thoroughly, oil holes are easily found; fixers lose no time in finding the trouble, and weavers keep themselves clean and their cloth clean by keeping their machines clean.

It is also quite an attraction for buyers and visitors dropping in such a mill; it adds to the mill's prestige and creates a favorable impression. The rule never fails that a clean and well-kept mill invariably turns out better and superior merchandise.

HENRY F. HORN,
Royal Weaving Co.

Editor, Overseers' Round-Table:

I have been reading and enjoying the Overseers' Round-Table for a long time, but this is the first time I have attempted to express myself. I usually disagree with Bill, but this time he shows a streak of real intelligence and I am inclined to agree with him.

There is no disputing the fact that floors should be kept clean as far as is consistent with practical policies, but I believe in many instances it is carried to an extreme at the expense of efficiency and at a dead loss to the company.

As Bill so aptly puts it, we all like to have supplies convenient and do not care to run the length of the mill to throw away refuse. There should, of course, be somebody employed to come around and clean up every now and then, but let us keep in mind the time worn adage "there is a time and place for every thing."

BILL.

Editor, Overseers' Round-Table:

The matter of keeping a mill looking neat is, in my opinion, up to the overseers in charge of the different departments. If each plans wisely and teaches his help properly the job will be done. I do not share Bill's opinion that a lot of time and energy is wasted in trying to make a mill look like a parlor.

Conditions in a neat, clean and orderly mill are reflected in efficient, high-class work and I can hardly conceive of this being carried to the extreme. On the other hand, a dirty disordered plant is reflected in inefficient, slip-shod work. Clean out all miscellaneous junk, keep all stocks of materials in their proper places, preach the gospel of cleanliness, and I feel sure that the results will be gratifying indeed.

FRANK WEBB.

QUESTIONS AND ANSWERS

Trumpet Holes in Cotton Spinning

Technical Editor:

What should be the size of trumpet hole in spinning to take a 7.00-hank double roving? Should not the twist run up to the bite of the roll? If roving is unduly separated, causing the twist in the yarn to run within ⅛ to 1¼in. from the bite of the roll, is not the yarn inferior in break, evenness, etc.? Are there any remedies other than smaller trumpets? (8054)

Although in a few cases special trumpets have been made up for individual mills according to their specifications, the size of trumpet holes for spinning is rarely varied, no matter what roving is being fed to the frame or what yarn is being produced. Generally speaking, only one size of trumpet hole is used for the slubber, one for the intermediate frame, one for the fine, and one for the jack. In each case the trumpet is large enough to allow for a wide range of hanks, double or single. Very little has been said or written on this subject, either by engineers or machine builders.

Many mills for example spin from 7-hank double roving today and from 2-hank single roving tomorrow, producing different yarns, but in no case altering the size of the trumpet. Even where, for some reason, mills are producing intermediate roving on a slubber or slubber roving on an intermediate, no change has been made in the trumpet, unless at the intermediate the drawing sliver has difficulty in pulling through the hole. Of course, when the slubber is used as an intermediate, the trumpet is actually too large, but so long as the stock goes through it little attention is paid to its size.

There is little doubt that each hank of roving properly requires a specific size of trumpet, but no data appear to be available as yet showing what sizes are most desirable in each case. Sometimes the trumpet is blamed when double roving fails to run parallel and becomes crossed, a condition which many carding and spinning overseers overcome by passing through the aisles between the roving and spinning frames, lifting up the covers or removing the slats or top cleaners, and poking the back stock down between the rolls with a pencil or other implement. It is possible that instead of running the two rovings through one trumpet, it would be better if each roving passed through an individual trumpet or hole on the traverse rod, but it might be found that this practice would separate the rovings so that the twist would not be inserted correctly in the yarn. Probably experiments have been conducted along this line and the practice found unsatisfactory, since the idea seems not to be used.

From the standpoint of both theory and practice, the closer the twist runs to the bite of the top and bottom front rolls, the better is the yarn. When the twist is not inserted at the proper point, the trouble may be due to too much separation of the rovings, which causes twist to act on too much surface area. Another cause may be grooved rolls. Perhaps the traveler does not ride smoothly because of cracked rings, rust on the ring, wrong circle for travelers, worn flanges, loading of the traveler cleaner or

too close setting, too heavy or too light a traveler, or too large a diameter of the bobbin. Other possible causes are too fast a rail speed, too much twist in the back stock, improper roll setting, or wrong weighting.

When the twist is inserted too far away from the bite of the front rolls, the strain on the strand tends to draw the fibers apart unevenly. In many cases this will cause not only unevenness in the yarn, but also end breakage. The unevenness in the diameter of the yarn causes, of course, uneven skein breaks, although in many instances this variation is slight. We have never seen an end stay up when the twist was being inserted more than about ⅛ to ¼ in. away from the front roll. It must be borne in mind that the effect of poor machine conditions cannot be overcome by a mere change in the trumpets and further strand condensing.

In conclusion, we should like to recommend to you that you make the following test, and we should be much interested to learn what results you obtain. Have your machine shop make ten trumpets with ½-in. holes, ten with ¼-in. holes, ten with ⅜-in. holes, and possibly ten with 7/16-in. holes. Put these on a frame and make several sets of full bobbins, testing each thoroughly by skein tests from the outside, middle, and inner layers. It would be advisable to switch the trumpets after a set of bobbins has been made in order that any irregularity in the back stock might be allowed for.

▼

Hosiery Is Chafed

Technical Editor:

We are enclosing herewith a 10-thread, 3-turn stocking which shows broken fibers or a roughness on the face. This fabric looks good and clear in the gum. The hose was dyed on the right side in porous knit cotton bags and degummed in a tub before dyeing. Dyeing time was about 3¼ hours. This particular lot weighed 76 lb., including bags, and was dyed in a 100 lb. machine. Any information you can supply us as to cause and remedies for the defect will be greatly appreciated. (8053)

This stocking has every appearance of being chafed from running overtime in the dyebath. It is possible to get chafing in the silk in the throwing and also in the knitting. This does not show up very plainly in the gum stocking, but when the stocking is degummed, the cut ends stand out on the surface, giving a hairy appearance to the surface of the stocking. In the sample, however, the surface of the stocking has a rubbed appearance, and the loose or broken fibers are rolled up into little nibs.

This rubbing action can come from running the goods too long in the dyeing machine, from running the machine too fast, from too low a water level in the machine, and from underloading or overloading the machine. As much, if not more, damage can come from underloading as from overloading the machine. If the pockets of the machine are not full, it gives the nets too much room to slide about. If the batch being dyed does not fill the pockets nearly to the rated capacity, it is better to distribute the load to the correct number of pockets and let some pockets remain empty. Regardless of the weight of the batch and the rated capacity of the dyeing machine, best results can be obtained by maintaining the regular water level necessary to float the goods across from one partition to the other.

Too much time was taken in the process. This should be cut down, even if it is necessary to increase the percentages of chemicals. The time can be reduced considerably by what is known as the split-bath method; that is, partially degumming in the preliminary boil-off and completing the degumming in the dyebath.

▼

Holes in Stocking

Technical Editor:

We have had from one particular customer a number of returns due to holes in the instep of our full-fashioned hose. We are of the opinion that the fault is not a defect in the hose but is caused by abrasion taking place from shoe straps, or the like, at this particular place. We are sending you a pair of the hose herewith and shall appreciate your unbiased opinion. (8047)

It is our opinion that the hole in the instep is purely the fault of the wearer. The appearance of the hole shows clearly that it was caused by abrasion. This might come from the wearer rubbing her instep against a chair post or table leg. The appearance of stockings also indicates that they were at least one size too small for the wearer, and were also worn with ill-fitting shoes. All of these factors contribute to unsatisfactory wear.

In examining the pair of hose submitted, we found a number of split stitches, commonly referred to as crow-feet, caused by low beards on certain needles. These stitches would certainly contribute to unsatisfactory wear, and we advise you to check over your machines carefully for this trouble. We have placed a marker on one of these stitches and are returning the stockings for your investigation. Careful examination of the hose will show several of these stitches in the two stockings, particularly in the tops.

▼

Pebble in Rayon Crepe

Technical Editor:

I am sending you under separate cover a sample of 150-denier, 40-filament rayon twisted 48/50 turns per inch. The firm for whom I have thrown this rayon crepe complains that it does not get the maximum amount of pebble. I should like to know whether this filling should give the maximum amount of pebble or whether there are some changes which I can make. The rayon was soaked with 27 lb. of oil and 3½ lb. of size to 128 lb. of yarn. It was soaked for 20 min. in 55 gal. of water at 120° F. This soaking oil and size is manufactured

QUESTIONS AND ANSWERS

by a well-known company. I believe that the above-mentioned rayon is woven 2x2 in an acetate warp. (8062)

We have examined the sample of rayon crepe and find that it is satisfactory in construction. It is our opinion, therefore, that this crepe should give as much pebble as is desired if it is properly finished; that is, the fault apparently is due to improper processing of the woven fabrics rather than to anything which is wrong with the thrown rayon. If you care to obtain a yard sample of the woven fabric in the gray and send it to us, we should be glad to examine it in order that our opinion can be verified.

▼

Rayon-Winding Production

Technical Editor:

Will you kindly answer the following questions in regard to winding soaked yarn for throwing:

1. How many pounds in an eight-hour day would be a fair production for a winder operating 50 spindles, 8,000-yd. 100-denier skeins? 2. How many pounds in an eight-hour day would be a fair production for a winder operating 50 spindles, 8,000-yd. 150-denier skeins? We realize that we have not mentioned the speed at which these machines are running, but we leave it to your judgment as to what would be a fair production with the machines running at a safe speed for the given deniers. (8057)

Where a throwing plant is equipped with a rayon winding spool which will hold upwards of 4 oz. of yarn and where the handling of skeins from the opening tables through the soaking and drying department to the winders is done in such a way as to prevent harming of skeins, an operator should produce an average of 50 lb. daily on either first- or second-quality 100-denier. With the same conditions as above, 70 lb. daily is a fair average for 150-denier.

▼

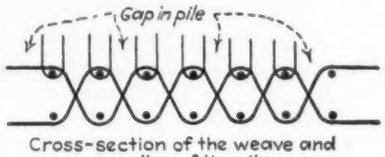
Carpet Pile Uneven

Technical Editor:

We are making a wilton velvet carpeting using a stationary pile wire. After the fabric is steamed and sheared, the surface or pile seems uneven; in other words, the pile is coupled for two rows, leaving a gap between these two rows and the next two rows. We have a good even back, but we are unable to take this uneven appearance from the face. Would appreciate your comments and suggestions on rectifying this condition. (8055)

This coupling is probably due to a condition in the cotton fine chains and should be remedied by attention to the following points: (1) Measure height of opposite fine-chain sheds at their widest points; that is, immediately in front of the reed with the lay fully back and the sheds fully opened. Adjust if necessary in order that the depths of both sheds will be alike. (2) In the draw-up in the reed commence with one fine chain, then face yarn and stuffers, then other fine chain in each dent. (3) In the draw-up in the shafts, a draw-up with two adjacent fine-chain ends on the one shaft,

then two on the other fine-chain shaft, is usually preferable to a draw-up where fine-chain ends are drawn up one on one shaft



Cross-section of the weave and coupling of the pile

and one on the other alternately. (4) Time the closing of the shed as early as possible in relation to the position of the lay. Have the shed, say, fully closed with the lay still approximately 1 in. from the fell of the cloth. It is assumed, of course, that lease rods are being used and that attention has been given to see that let-offs, etc., are functioning satisfactorily.

▼

Corrugations in Flannel

Technical Editor:

Certain of our flannel constructions have what are known as corrugations. This trouble did not exist as long as we ran only on 4.50 weight goods. Recently, however, the product of the plant has been changed to include weights from 6.50 to 1.75; but corrugations appear only above 4.50. We are sending you several samples of flannels in which the corrugations occur. Will you kindly advise what is the cause of this trouble. (8044)

It is our opinion that these corrugations are cause by the unevenness of the yarn; that is, mixed filling. The tight places cause the fabric to wrinkle, making an uneven place in the piece. When napping takes place, the wrinkled or tight places do not come in contact with the wire evenly. Naturally wherever a corrugation takes place this part of the fabric will nap in wrinkles.

▼

Warp Streak in Broadsilk

Technical Editor:

I am attaching a small sample of broadsilk which you will note is streaked in the warp material. If possible, I would like to have your opinion as to just what has caused this. (8070)

This defect is in the warp stock. There are many heavy ends which got by the warping department. The denier size varies from 17 to 22.

Apparently you are combining two different lots of warp stock in making this fabric. When different lots are to be mixed, the warper should be so advised in order that he can adopt suitable measures to spot the spools in the warping. If more attention is paid to the blending of different lots, we believe this defect will be eliminated.

Wool Goods Shrink

Technical Editor:

We are reclaiming some discarded paper-makers' felt which we mix with our virgin wool to make about 26-oz. material. We have been having complaints of the cloth shrinking when pressed after being made up into garments. In introducing other waste, such as garnetted stock, we do not seem to have this trouble with shrinkage; and we wish to know if this shrinkage is caused by the use of felt waste. (8073)

As only a sample of the processed paper-makers' felt was inclosed with your inquiry, it will be assumed that the virgin wool in the blend was the same in grade and percentage, when the felts were used and when other waste, such as garnetted stock, was used. Without the sample of this garnetted stock, it is impossible to estimate whether the two stocks have the same felting capacity. This may be determined by sewing a handful of each of the two materials into the halves of a small, flat, divided cotton bag, which should then be machine-sewed directly on one of the pieces before fulling. Both materials will then receive the same fulling treatment as the goods and can be compared after washing and drying.

It is probable that the garnetted stock has considerably less total fulling capacity than the paper-makers' felts. If both goods came the same weight from the loom with the same layout of construction, the finisher doubtless shrank both kinds of goods the same amount in both length and width. This would leave a considerable degree of additional felting capacity in the goods with the paper-makers' felts. The result would be that after the garments were made from these goods, the influence of heat, moisture, and pressure under the iron caused the shrinking complaint.

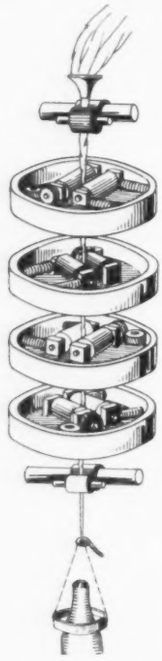
If the circumstances suggested are found to be true, the remedy for goods finished would be to try having them heavily sponged, or given a mantling before cutting up. This could be done by one of the commercial sponging houses. It could also be done at the mill, by re-fulling, crabbing, decating, or mantling, depending on what machinery is available. If the goods are being held in the gray and the treatment suggested should not be sufficient, the goods should be shrunk more both ways in the fulling mill, with measurements taken at regular intervals so that as the rate of shrinking lessens, or before the goods become far too narrow, they may be taken out and the width noted. Doubtless they will be narrow. The dryer should be run in with the same ratio, producing heavier and narrower goods, but suitable for garments.

If it is desired to continue the use of these paper-makers' felts, and they are otherwise suitable, it would be advisable to check up the comparative dead loss in finishing, and, taking this into consideration, to revise the layout of the goods to keep the finished weight at 26 oz. To allow for the possible additional fulling, the goods could be laid wider in the loom with the same total number of ends in the warp, and with perhaps a pick or two less. It might even be advisable to spin the yarn a trifle lighter to offset the increased fulling and maintain the desired weight.

Long-Drafting System

Considered outstanding among the many textile-machinery developments of recent years is the Harris long-drafting system, invented by Thomas Harris, Providence, R. I. The system permits spinning cotton directly from drawing sliver with drafts running as high as 800. Work has been started in applying the system to other fibers, including worsted and even woolen.

Plans for the introduction of the Harris drafting method to the industry have not been completed, and it is uncertain at the present time just how the equipment will be made available to the mills. The first 100-spindle frame is now being constructed by the Harris Textile Machy. Corp., Providence, of



which Mr. Harris is president. This frame is built in 4-in. gage with 3-in. ring and 8½-in. traverse, calling for much finer dimensions than the earlier single-spindle models. Finer gages can be built for those mills which do not wish to produce the larger packages.

The principle on which the Harris system is based is relatively simple. It has long been known that the greatest difficulty in effecting a high draft is the control of the short fibers, which tend to move to the surface of the roving. The Harris method holds these short fibers in position by giving the sliver or roving a false twist during drafting.

It is also known that roving from the final roving operation is not so even as the drawing sliver from which it was made. Mr. Harris reports that his method of drafting and the elimination of the roving operations produce an evener and also stronger yarn.

The accompanying diagram illustrates the method by which the false twist is inserted. The drawing sliver passes downward through a trumpet hole to a pair of feed rolls. From the feed rolls it passes to a pair of drafting rolls revolving with their contacting surfaces moving downward and located in the center of a disk which is revolving horizontally to either the left or right. Just below, the strand of fiber encounters another pair of rolls in another disk which is revolving in the opposite direction to the first. The strand thus proceeds through two more disks, each revolving opposite to its predecessor. Finally it goes through a pair of ordinary front rolls, through a pigtail guide, and down to the usual ring and traveler. The trumpet and all roll nips are in a vertical line with the spindle; and therefore the traveler twist runs straight to the nip of the front rolls. Each pair of rolls runs faster than its predecessor, affording draft, while the revolutions of the disks insert twist and take it out again.

On the 100-spindle frame now under construction the sliver will be fed from tubes rotating on ordinary skewers in a double-deck creel. On early models the sliver was fed from cans, requiring more floor space. A draft of around 270 will be used to produce 50 to 60s yarn from a single 40-grain sliver. Another disk could be added to give a draft as high as 800; and yarn as fine, for example, as 100s could thus be produced, it is reported. Production on the new frame will be the same as on an ordinary frame operating under the same conditions. A change of draft between the first disk and the feed rolls and between the last disk and the front rolls will be sufficient to give a range of 20 or more yarn numbers.

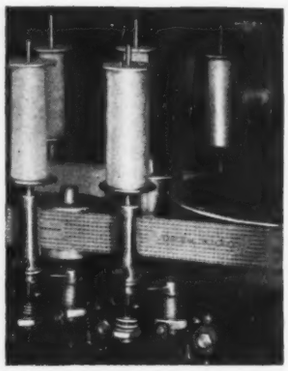
The General Electric Co. has developed an individual-motor spindle for the Harris frame, the rotor being wound on the lower part of the spindle. This will insure an even twist and reduce the floor space required by eliminating the tin cylinder. A frequency changer for a group of frames will permit varying the spindle speed or twist from, say, slack to voile quickly, conveniently, and without gear change. The individual-motor spindle may or may not be included as standard equipment on all Harris frames.

The new drafting system can be applied also to either fine roving or jack frames built for bobbins ranging from 7x3½ to 8x4 in. This would require only one process of roving, and the installation would be much less expensive; but the savings would not approach those gained by applying the system to spinning. Only three disks would be required for roving, and of course fewer spindles would be involved. In either case, no more than two processes of drawing will be required.

Thomas Harris, the inventor, has had considerable experience in machine work, having been engaged at various times in the building of engines, tractors, and airplanes. His textile experience covers a recent ten-year connection with Manville Jenckes Co., during which time he served as second-hand, overseer, and superintendent.

Non-Skid Silk Spindle Belt

A new type of non-skid silk spindle belt, known as OKAY-TRED, has been introduced by E. F. Houghton & Co., Philadelphia. This belt has a ribbed surface designed to grip the spindle firmly and is extremely uniform in thickness and texture. These features are said



to eliminate vibration and uneven twist. The leather is joined with exceptionally long laps, and the finished belt is given a long "running-in" at high speed under tension to remove original stretch and leave the belt soft and flexible. The belting is furnished in lengths for all standard spinning frames and can be easily cemented in the textile plant. Other advantages cited for the belt are its long life and the fact that it will not unravel and tangle the thread being spun.

Woolen Ring Frame

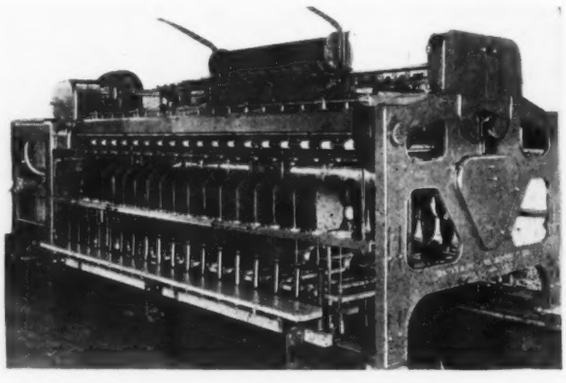
Davis & Furber Machine Co., North Andover, Mass., has placed on the market a new woolen spinning frame, the "Model D Simplex" frame, for large-package spinning with rings up to 5-in. diameter. It will spin on bobbins up to 12 in. in length and will make a yarn package up to 4¾ in. diameter, holding considerably more than a pound of yarn. This new frame makes the line of Davis & Furber woolen spinning frames cover a more complete range, extending from the Model B frame with 3-in. ring for 10- or 11-in. paper tubes and bobbins to the Model C frame for carpet yarns on 14-in. bobbins. The new Model D is designed to be the all-purpose frame which will be mostly used in mills spinning yarns on the carded-woolen system. It is capable of handling any stock that can be run on 3½- to 5-in. rings. This range includes all yarn sizes and stocks in most carded woolen mills.

Numerous refinements and improvements are designed to give uninterrupted production. New features include a lower frame that is more adapted to women spinners; a simplified construction which reduces manufacturing cost and makes parts more accessible for repairs and adjustment; spindle drives higher from the floor, keeping tapes cleaner; larger front press rolls with longer traverse, which give twice the wear; and a draft field of 17 in. from the back rolls to the nibs on the tubes, giving a more even yarn due to the more uniform drafting. The accessibility of adjustments is one of the most important features of the new frame, as it reduces the time lost while the machine is being changed over and encourages the second-hand, section hand, or overseer to make adjustments which will improve the work, since such adjustments can be made easily and quickly without even soiling the hands in many cases.

A traverse of the tubes provides longer life for the deflector rod. Press rolls are held against the fluted roll by a frame or saddle, applying pressure in the middle which is equalized at both ends. This arrangement prevents undrafted yarn from passing through one end of the roll to the bobbin when the other end is pushed away by a lap and is simpler than earlier constructions. The spindle used is the improved gravity type and is equipped with bobbin holders or clutches as desired. The spindle drive is such that uniform tape tension is not dependent upon springs, and therefore twist uniformity is assured.

The Simplex frame is so named from the ease with which it may be changed over and the fact that there are only 32 change gears required to take care of the widest range of materials and yarns. These 32 gears give twists from less than 3 to over 54; any draft from 2.8 down to no draft; any front-roll speed from 35 to 208 r.p.m.; and any tube speed from 1,000 to 2,000 r.p.m. Supplied with the frame are three short tables which can be readily understood by any section hand and which give at a glance the right gear for any twist, draft, tube speed, and roll speed.

An arrangement is provided for straightening out the yarn and freeing it from kinks when the frame is started up, thus preventing yarn breakage at the travelers. There is no heavy manual labor involved in getting the full bobbins back to doffing position, as this work is taken care of by power. This is one of the reasons why the frames can be made of any length desired, from 80 to 200 spindles or more. The trend today, however, is toward the shorter frames for most stocks. In addition to spinning wool yarns and mixtures, the machine spins cotton waste, asbestos, and all fibers spun on the carded-woolen system of manufacturing.



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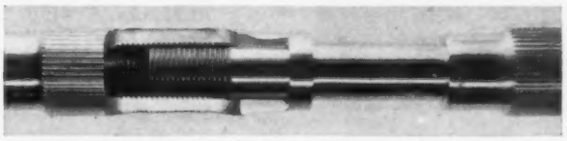


Screw-Coupled Spinning Rolls

Whitin Machine Works, Whitinsville, Mass., recently introduced screw-coupled steel fluted rolls for spinning, furnished as optional equipment for the front line of new frames. The makers have devoted particular attention toward securing long life for these rolls, breakdown tests having been made to determine their durability under severe conditions. It is claimed that these rolls are exceptionally strong and positively tight and that all torque is taken by the end of the roll contacting a stop collar on the adjacent section. All sections of the rolls are said to be positively concentric and rotate absolutely true. The overall length from joint shoulder to joint shoulder is maintained for all sections by the use of precision gages, making them interchangeable, and making it unnecessary to adjust couplings or position roll stands to meet varying lengths of sections. Rolls made with screw-coupled joints are either right- or left-hand. They are not interchangeable from one side of the frame to the other.

Oilless Throwing Machines

Adopting the axiom "If you don't use oil, you can't get oil spots," the Atwood Machine Co., Stonington, Conn., has now equipped its silk and rayon winders, doubler-twisters, and redraw frames with oilless bearings. The application of such bearings throughout Atwood twisters was described in the October, 1933, issue of TEXTILE WORLD, page 90; and their adoption for the other machines is just as complete, although of course the number of bearings varies with the character of the machine. A 200-spindle Monarch twister, for example, requires 96 oilless bearings; while a 120-spindle Stonington winder requires 544. The winder applications are designated in the accompanying illustration by dots and arrows.

Although the main purpose in this extensive adoption of oilless bearings for throwing machinery is the production of cleaner yarn, particularly in the case of rayon, from which it is exceedingly difficult to remove oil, other advantages are realized. Oil is saved. Oiling labor is saved. Machine production is increased by the reduction of stoppage. In the case of the winder, the wear of spindle blades, fingers, swift gudgeons and hangers is said to be eliminated.

Three types of oilless bushings are being used in the Atwood machines; metal, wood, and a combination of metal and wood. In making the metal bushings, copper, tin, organic matter, and a small amount of graphite are pulverized and compressed to shape. The mold is then heated to unite the copper and tin, forming bronze, and to drive off the organic matter, leaving fine interconnected pores in the bronze. The pores are then impregnated under vacuum with a special oil. About one-third of the completed bushing, by volume, is oil. The wood bushings, which are used only for the lighter applications, such as under the traverse bar, are made by "boiling" hardwood in oil for five days. The metal-and-wood bushings employ the wood as wicks to draw oil from a sealed oil reservoir around each bushing. All of the oilless bushings can be applied to existing equipment.

Vertical Design Variable-Speed Unit

The variable-speed transmission of vertical design, completely inclosed, developed by Reeves Pulley Co., Columbus, Ind., and described in our December issue, is the No. 0000 size. This unit which has a capacity of ½ to ¾ hp. is the smallest size in this model and the most recently developed. The complete line of vertical inclosed units comprises ten sizes ranging up to 25 hp. and covering speed ratios as great as 16:1.

Equipment for Examining Textiles

For examining the characteristics of the pattern and the uniformity of the mesh in textile fabrics, especially loosely woven goods, and for measuring the diameter of yarn and the spacing of warp and filling threads, an apparatus has been developed by the Société Genevoise d'Instruments de Physique, of Geneva, Switzerland, manufacturers of scientific instruments and equipment. This apparatus is distributed in the United States by the R. Y. Ferner Co., Investment Bldg., Washington, D. C.

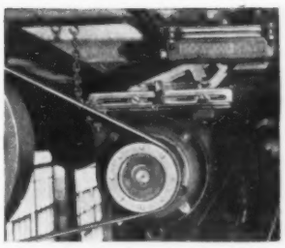
This equipment can be used for measuring the average length of fibers or, for example, of flocks used in the suede process. The screen is mounted, at a slight angle to horizontal, in the top of a steel cabinet, and the projection of the sample comes from below the screen, being brought to a focus on the upper surface of the glass plate. The condensing lens and the lamp are mounted above the object table, and a shield is provided to cut out glare from the illuminated object table and object when the latter has been adjusted. Since the projection comes from below the screen, it is pointed out, the head and hands of the operator cast no shadows to interfere with his examination

of the projection. For obtaining a photographic record of samples, a double plate holder with cover cloth is provided by which plates or film can be placed in close contact with the screen. Glass scales are furnished for measuring objects or the spacing of threads in a woven fabric.

Motor Drive Bases

Motor drive bases of two types, ceiling drive and vertical drive, have been announced by the Rockwood Mfg. Co., Indianapolis, Ind., designed to provide the same range of tension adjustment obtainable with Rockwood floor-mounting bases. The ceiling-drive base, which is quite similar to the standard base, except that it has special hanger arms which suspend the motor horizontally, and give greater clearance from the ceiling. The adjustable steel angles which move horizontally on the hanger arms are supported by a ledge cast on the bottom of the hanger arms. This ledge carries the weight of the motor and takes the weight from the slotted-head screws in the arm slot. The arrangement of the motor support is such that one man can easily make any desired change in belt tension.

In the vertical-drive base, as in all Rockwood drives, the motor is mounted on two adjustable, horizontal arms, suspended from a pivot shaft. But in this adaptation, the weight of the motor is counterbalanced by two coiled springs, connected by rods to the bracket arms. These springs are adjustable and provide the required belt tension. When the motor is located above the driven pulley, the springs are adjusted to support the entire motor weight plus the necessary belt tension. When the motor is located below the driven pulley, the springs are adjusted to support



only that portion of the motor's weight not needed to provide belt tension. This adjustment is made by turning the two nuts at the ends of the coil-spring rods.

Elastic Thread

A new slow-ageing rubber thread, which is said to give an extremely long life to elastic textiles, has been developed by B. F. Goodrich Co., Akron, Ohio. The new thread is made in three colors—natural gray, white, and pink. Tests made by the manufacturer indicate that the thread retains its tensile strength and elasticity after repeated washings and ironings and prolonged exposure to light.

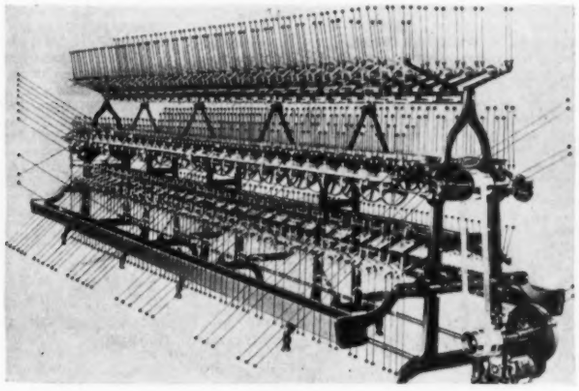
Multiple-Die Creasing Machine

Fidelity Machine Co., Philadelphia, has made several improvements in its multiple-die creasing machine which is used for making pockets of sweaters and other knitted outerwear. This machine will crease four separate shaped pieces at one time and, depending upon the material used, as high as four pieces of each shape. They are made in gas- and steam-heated

types, with or without steam jet attachment for creasing woven or knitted fabrics in sizes to suit all requirements. The new type machine is much heavier construction than previous models. The foot power mechanism has been simplified and made easier to operate. All machines are interchangeable with their respective dies, and the makers state that only 3 min. are required to change from one die to another.

Humidity Controls

Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., has announced the development



NEW MACHINERY & PROCESSES

of a new line of room type relative humidity controllers, available with or without relative humidity indicators, and in various models providing for different electrical circuits. Actuated by a hygroscopic element composed of multiple groups of human hair, a simple lever mechanism transmits the motion of the expanding and contracting element to a mercury switch. The switch, in turn, operates the humidifying or dehumidifying equipment. With the necessary circuit arrangements, motorized valves may be controlled; or when using the humidity control as a pilot control of a magnetic starter, larger loads may be controlled, limited only by the load rating

of the starter. Although constructed for setting over a range of 20% to 80% relative humidity, the setting pointer is internal and not subject to tampering by persons unfamiliar with humidity requirements. Covers enclosing the control mechanism are of the locking type and require a special key to permit access. The makers state that these controls will, under conditions of normal rate of increase or decrease in relative humidity, control within a total variation of 2%.

Non-Inflammable Capacitor

General Electric Co., Schenectady, N. Y., has announced a totally enclosed non-inflammable capacitor for use in dusty atmospheres, especially where lint and fly are prevalent. This capacitor is treated and filled with Pyranol, a non-inflammable material employed because of its insulating and dielectric properties. In addition, this material has made possible a capacitor of smaller size and weight. The capacitor dielectric itself is hermetically sealed, and connections are brought out through bushings into a dust-tight box which surmounts the unit.

Metallic Lead Lubricant

Armite Laboratories, 1450 East 61st St., Los Angeles, Cal., have developed lubricants in which metallic lead is the protective element. This new product, known as "Bestolife," which has a pure metallic lead base instead of lead salts, is said to withstand temperatures up to 430° F. and not to lose its entire lubricating stability until the melting point of lead is reached.

For severe conditions, a metallic lead packing consisting of a mixture of long fiber asbestos, cotton, and a finely divided metallic lead with a lubricant, has been developed.

Industrial Analyzer

Suitable for testing industrial apparatus and motors up to 100 hp., 440 volts, is a portable a.-c. testing set recently announced

by the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. This testing device, known as the industrial analyzer, in reality is a miniature three-phase switchboard panel in a carrying case complete with all necessary switching equipment, transformers, and resistors. The unit contains a triple-scale ammeter (0-5, 0-25, and 0-125 amperes); a triple-range voltmeter (0-150, 0-300, and 0-600 volts); a polyphase wattmeter with three scales of the above voltage and current ranges; and a polyphase power-factor meter with 10-100-80 scale to operate on the above voltages and currents. The ammeter, voltmeter, and wattmeter indicate and read directly on both three-phase and single-phase circuits. The unit is compact and weighs only 28 lb.

NEW PUBLICATIONS

Modern Textile Microscopy; by J. M. Preston. Published by Emmott & Co., Ltd., London. Price 15s.

Beginning with a description of the microscope and auxiliary equipment and a brief discussion of general technique, this book passes on quickly to a consideration of the various applications and methods of use for the microscope in the textile field. Among the subjects treated are section cutting, photomicroscopy, micrometry, photometry, spectroscopy, ultramicroscopy, fluorescence microscopy, and polarized-light methods. Many of the textile applications and methods devised by the author will be of value to other investigators.

Effect of Weave on the Properties of Cloth; Bureau of Standards Research Paper RP600; by H. F. Schiefer, R. S. Cleveland, J. W. Porter, and J. Miller; Superintendent of Documents, Washington, D. C.; 5c.

Investigation showed that in general a cloth which is closely woven yields the highest strength and lowest tear resistance, and vice versa. Special attention was given to aeronautical cloths.

Unmentionables; by Robert Cortes Holliday; Ray Long and Richard R. Smith, Inc., New York; $3.00.

Believe it or not, this is a history, or rather the history, of feminine underwear "from fig leaves to scanties," as the author puts it. We reviewed it professionally, in view of our editorial interest in the underwear industry; we enjoyed it humanly, for quite other reasons. If anyone needs an excuse for reading this book (which he doesn't), the fact that he is an underwear manufacturer would seem to be as good a one as any . . . When we first became emancipated from the text-book type of history, we found that a monograph tracing the development of any ordinary article of use —say, a table-cloth—through the ages taught one far more than did a book of campaigns, or dynasties, or other so-called historical subjects. Mr. Holliday not only teaches, but he does so in a most delightful way. "Marjorie," symbol of the eternal feminine in every era, is the heroine. We meet Marjorie of ancient Crete in her iron corset; Grecian Marjorie in her chiton; Marjorie of the Middle Ages padlocked into a chastity belt by her proprietary spouse. Later we find her swathed in the virtuous flannels of Victorianism; and now remaking the world through publicity for her scanties and sheer hose. . . . We recommend the book to underwear manufacturers for the knowledge it gives of the product they are making; and to other manufacturers, just because it is such good reading.

Accounting Requirements under the NIRA; The New York State Society of Certified Public Accountants, New York New York; 35c.

This bulletin is devoted, in part, to the discussion of the above subject at the annual fall conference of the society. Introduced by an address prepared by Malcolm Muir, Division Administrator of the NRA, the discussion was continued by others, and concluded by the question-and-answer method. The bulletin contains interesting information on a timely subject.

Business Literature

Recorders. Foxboro (Mass.) Co. Bulletin describing single and multiple record potentiometer recording pyrometers.

Ball Bearings. Fafnir Bearing Co., New Britain, Conn. Booklet showing design, application and engineering data of single and double felt-seal ball bearings.

Chemical Equipment. Haveg Corp., Newark, Del. Illustrated booklet describing the properties of "Haveg," a material of asbestos-resin base, and showing corrosion resistant chemical equipment, including dyeing machinery and tanks, made of this material.

Meters. Brown Instrument Co., Philadelphia. Pamphlet showing recording CO_2 meters and chart of percent preventable fuel loss in relationship to percent of CO_2 in flue gas.

Materials Handling. Mercury Mfg. Co., Chicago. Circular illustrating gasoline tractor and various types of trailers for materials handling.

Motor Applications. Louis Allis Co., Milwaukee. Chart showing 29 different types of motors and listing the proper motor for over 50 different standard applications.

Looms. Crompton & Knowles Loom Works, Worcester, Mass. Special issue of the **C. & K. Loom-inary** giving details of loom modernization program of the Burlington (N. C.) Mills group of rayon weaving plants.

Motors. Louis Allis Co., Milwaukee. Magazine, known as *The Louis Allis Messenger*, containing information about new motor developments and data regarding the care and operation of electric motors.

Truck Bodies. Aluminum Co. of America, Pittsburgh. Booklet with engineering data and construction drawings on the use of aluminum in truck bodies.

Motors. Crocker - Wheeler Electric Mfg. Co., Ampere, N. J. Illustrated pamphlet showing alternating and direct current motors, generators, motor generator sets, speed changers, flexible couplings and other apparatus.

Compressors. Worthington Pump & Machinery Co., Harrison, N. J. Circular describing steam and motor driven single horizontal-single stage 7-in. and 9-in. stroke compressors.

BUSINESS NEWS

Torrington Co. (Conn.) has appointed Carl Epps, Rome, Ga., as travelling representative, operating from the Greensboro (N. C.) office of that company. Mr. Epps was at one time with Climax Hosiery Mills as manager and buyer. Later, he became superintendent of Champion Knitting Mills. In 1930 he was associated with the Tubize Chatillon Corp., in research department, serving particularly the southern territory in matters of experimental knitting, testing, sales service and promotional field work.

Arnold, Hoffman & Co., Inc., Providence, R. I., manufacturers of sizing materials and chemicals for the textile industry, have appointed Frank W. Johnson, Greensboro, N. C., as southern manager, succeeding R. E. Buck, Sr., who died recently. Mr. Johnson, who has been with the company in a selling capacity for several years, will continue to make headquarters at Greensboro, but will probably move to the Charlotte (N. C.) offices later.

Bristol Co., Waterbury, Conn., announces that, in order to expand and consolidate its present Canadian service laboratory of 12 years' standing so as to include sales, service and manufacturing, a separate company, the **Bristol Co. of Canada, Ltd.,** has been incorporated. Factory and general headquarters will be located at 64 Princess St., Toronto, Ont., where Bristol recording, indicating and control instruments will be made. J. S. Mayberry, graduate engineer of Toronto University, and for 10 years with the parent company, has been appointed manager.

Joseph T. Ryerson & Son, Inc., Chicago, has announced the purchase of the stock and good-will of **Bacon & Co.,** Boston, iron and steel. The company also has under construction an extensive addition to its St. Louis steel-service plant. The new building will be largely used for the storage of materials that must be protected against atmospheric change, although there is also an unheated section. New offices, equipped with

air conditioning, are included in the plans.

Riverside Boiler Works, Inc., Cambridge, Mass., announce that William R. Grunow has become associated with them in connection with the manufacturing of tankage and accessory equipment for the chemical process and allied industries. Mr. Grunow has long experience in the metal-working field, particularly with reference to the ferrous and non-ferrous metallic materials.

Willcox & Gibbs Sewing Machine Co., New York, has moved its Boston office to 85 Kneeland St., where it maintains a large show floor. A. E. Sanborn is in charge as manager.

Louis Allis Co., Milwaukee, Wis., has appointed Chas. F. Norton as general sales manager. Until recently Mr. Norton was vice-president and general manger of the **Howell Electric Motors Co.**

Glyco Products Co., Brooklyn, N. Y., has appointed John W. Schumacher as sales representative for the Detroit district, specializing in synthetic resins, waxes and emulsifying agents. Mr. Schumacher was formerly with the **Acme White Lead & Color Works** and later with the **United Color & Pigment Co.** G. K. Heller has received a similar appointment for covering the Baltimore, Md., district.

Westboyd Chemical Co., Inc., Chicago, has appointed Walter G. Shull, of Greenville, S. C., as sole sales agent for the South. Mr. Shull has been in the territory for 20 years in a similar capacity.

Sonoco Products Co., Hartsville, S. C., makers of paper and cork products for the textile industry, has announced the removal of its eastern factory branch from Plainfield, N. J., to permanent quarters in the company's own building, with nearly 100,000 sq.ft., at Garwood, N. J., seven miles nearer to New York City. The new plant is equipped for making all Sonoco products, except cones and cork cots, and until additional machinery is installed to make it a complete unit, it will manufacture spools, tubes, cores, bottle bobbins and other paper products. Eastern sales office, which is in charge of W. B. Broadbent, has been transferred from Plainfield to North Avenue, Garwood, N. J. J. K. Taylor continues in charge of manufacturing at the new plant.

SKF Industries, Inc., on Jan. 1 removed their general and executive offices from 40 East 34th Street to Front St. and Erie Ave., Philadelphia, Pa.

National-Superior Co., Springfield, Ohio, will be represented in the southeastern territory by Roy E. Hoffmann, with headquarters at Jacksonville, Fla. Mr. Hoffmann was formerly with Fairbanks-Morse Co. in Atlanta.

National Oil Products Co., Harrison, N. J., has appointed G. D. Davis, secretary of the company, as general sales manager in charge of sales of Industrial, Farm Feed and Admiracion Departments. J. H. Barton, vice-president, has been made general manager. Ralph Wechsler will concentrate on his work as technical director.

Carded Yarn Merchandising

GOVERNED BY TRADE PRACTICE PROVISIONS

MERCHANDISING abuses that have plagued the carded sales yarn trade for years, especially during periods of severe price competition, are now prohibited under the terms of trade practice provisions which became effective Jan. 1, 1934, following approval by the NRA Administrator of recommendations submitted by the code authority of the cotton-textile industry. The trade practices governing the merchandising of carded cotton yarn, which have the same binding effect upon those engaged in such merchandising as any other provisions of the cotton-textile code, were formulated by special committees representing carded yarn spinning mills and yarn merchants. The members of these committees deserve full measure of credit for the careful and diligent manner in which they approached the task of drafting these trade provisions.

Since the carded yarn trade practices are the first detailed provisions authorized under the cotton-textile code for regulating merchandising of textiles, the text of these provisions as announced by the cotton-textile industry committee, are published below:

1. Definitions.

A. "Spinning mill" is any manufacturer spinning carded cotton yarn to be sold as such, whether selling with or without the employment of a selling agent.

B. "Selling agent" is any person, whether known as a commission house, yarn merchant or otherwise, who sells carded cotton yarn in the relation of an agent for a spinning mill, who receives a commission for his services, assumes the obligation of effecting sales in the interest of the spinning mill and guarantees the account of the purchaser, the mill being the principal in all transactions and being furnished with the names of all prospective purchasers when sales negotiations are opened, the guarantee of performance of the contract being a matter for special agreement between the spinning mill and the selling agent.

C. "Commission" is the sum paid or allowed to an agent for his services to a spinning mill in the sale of carded cotton yarn.

D. "Broker" is one who brings together spinning mills and purchasers and receives, on each transaction which the mill completes by delivery, a brokerage fee on the price of the order, but does not guarantee the account.

E. "Purchaser" is anyone who buys carded cotton yarn for his own account or for that of an affiliate or a subsidiary or parent organization.

2. Spinning mills shall furnish duly certified reports each week to the Statistical Bureau of the Cotton-Textile Institute, Inc., 320 Broadway, New York City, of all sales of carded cotton yarn during the week immediately prior (except sales made through selling agents), stating same by date of order, quantity and descriptions of yarn, delivery specifications, price to be paid, and terms of sale. Selling agents shall file similar reports as to all sales made on behalf of spinning mills. Statistical reports shall be issued weekly by the Institute to all spinners and selling agents summarizing such statistical information received.

3. No spinning mill, selling directly, shall make any price to a purchaser or any allowance to a purchaser in the guise of commission, brokerage, dealer's discount or fee, either directly or indirectly, or by any secret rebate, advantage, inducement, compensation, gift or otherwise, by which any purchaser shall, in effect pay a less price than the price which such spinning mill would quote if dealing through selling agents. Commission shall be paid only to bona fide selling agents registered as such with the Cotton-Textile Institute, Inc.

4. No selling agent shall, directly or indirectly, by way of commission, discount, fee, secret rebate, advantage, inducement, compensation, gift or otherwise, split or divide with or pass on to the purchaser the commission or any part thereof which he receives from the spinning mill.

5. Selling agents shall not, directly or indirectly, whether through a subsidiary or an affiliate or otherwise, buy stocks of carded yarn for their own account or for that of a subsidiary or affiliate or parent organization, engage in short selling or guaranteeing prices against decline; but a selling agent may sell for his own account any yarn which he may be required to take over by reason of his guarantee of a purchaser's account or contract.

6. No spinning mill shall, either directly or through a selling agent, guarantee prices against decline, or directly or indirectly abate prices on unfinished contracts, except to the extent that costs are affected by subsequent Governmental action.

7. No spinning mill shall, either directly or through a selling agent, grant to any purchaser on any sale of any type of carded yarn sold as such, more favorable terms of cash discount than 2% discount for payment within 30 days, or 2% discount up to the 10th proximo, as may be elected by the purchaser. All yarn, other than as hereinafter mentioned, shall be sold net weight. Not more than five days' grace shall be allowed in any discount period. All sales providing for settlement either in any medium other than cash or for longer periods of time than those above specified shall be absolutely net. On sales of ball warps, chain warps, warps on beams and similar put-ups, such yarn shall be sold on the basis of calculated weight with 2% tolerance. The foregoing stipulations in this clause apply only to domestic sales.

8. In all sales effected by spinning mills, whether directly or through a selling agent, there shall be used a "uniform form of contract," after such form shall have been submitted to the Administrator by the Code Authority and received his approval.

9. No provision herein shall apply in respect to orders placed before the effective date of these provisions which remain uncompleted on that date.

10. Administration of these provisions "Governing the Merchandising of Carded Cotton Yarn" is entrusted to the "Carded Yarn Sub-Committee," constituted by the Cotton Textile Industry Committee, subject to the authority and jurisdiction of the latter committee, i.e., the Code Authority for the Cotton Textile Industry.

TEXTILE WORLD is a consolidation of *Textile World Record* and *Textile Manufacturers Journal*, effected in 1915.

Textile World Record was the paper resulting from the merger, in 1903, of *Textile World* and *Textile Record*. The former was founded in 1888 by Walter B. Guild and Henry G. Lord. In 1895 it absorbed *Industrial Record*, formerly *Manufacturers Review and Industrial Record*, which was started in Boston in 1868. *Textile Record* was founded in 1880 in Philadelphia by Charles Heber Clark and Frank L. Nagle.

Textile Manufacturers Journal was founded in New York in 1894 by Joseph H. Bragdon. The merger of *Textile World Record* and *Textile Manufacturers Journal* in 1915 resulted in the formation of Bragdon, Lord & Nagle Co., Inc., and publication of *Textile World Journal*, later shortened to TEXTILE WORLD.

In 1923 *Posselt's Textile Journal* was absorbed by TEXTILE WORLD; and in 1924 *Textiles* was also absorbed.

In 1928, TEXTILE WORLD became affiliated with the McGraw-Hill Publishing Co.

The editorial staff of TEXTILE WORLD consists of: Douglas G. Woolf, editor; William B. Dall, managing editor; Edwin D. Fowle, associate editor; Winn W. Chase, assistant editor; Ralph C. Maultsby, southern editor; James A. Austin, New England editor; Paul Wooton, Washington correspondent.

[NOTE: Published annually for purposes of record.]

TEXTILE WORLD'S

Cotton Digest

BUSINESS statettstmanship of a high order is reflected in the following statement issued by the Cotton Textile Code Authority in connection with the 25% curtailment of operations made effective in December:

"While the committee felt that the circumstances required the action taken in December administrative order as to the industry as a whole, it is the policy of the committee to avoid such industry-wide temporary plans and to give effect to measures which apply only to particular groups and on the initiative of those engaged in the respective groups."

That psychology is the very essence of industrial self-government. The Code Authority has again proved itself worthy of the trust which manufacturers have imposed in it.—*Editor.*

Mill Curtailment Orders Announced

Curtailment programs for January were put into effect in several branches of the industry, following recommendations of the planning and advisory committees of divisions involved, and indications are that every reasonable effort will be made to prevent the destructive results of surplus production.

Fine goods mills and plants manufacturing certain types of rayon fabrics will curtail production by 25% during January, following a similar policy during December, while similar percentage of curtailment, with some exceptions, was declared in the textile printing industry. Carded sales yarn mills (excepting equipment on yarns for tires) are likewise prohibited from operating more than 48 hours per week for the 60-day period beginning Jan. 1. Other mills are prohibited from operating spindles on carded yarns for sale, unless such were thus employed at some time during 90 days prior to Dec. 1, 1933. Combed yarn mills, producing yarn for sale as such, are being allowed to operate the full 80 hours per week until Jan. 15, but according to agreement reached Jan. 5 there is limitation to 56 hours per week for six weeks period, Jan. 15 to March 3.

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Labor Problems Reaching Solution

Increasing stability of labor conditions in cotton manufacturing centers has been noticeable during recent weeks. Settlement of strikes at Brookside Mills, Knoxville, Tenn., and at Marlboro Cotton Mills, Bennettsville, S. C., following the restoration of peaceful operations at several other southern mills which had been closed by labor disturbances, made the new year happier for all concerned. State industrial relations boards rendered distinct service in bringing about amicable settlements in several cases. Clarification and modification of code regulations regarding wages and hours of employment, some of which resulted in serious controversy, served to improve the situation, and well-informed observers report that southern mill employees are taking less interest in labor unions than was the case during the first three or four months of code operation. General Johnson approved code amendment, which became effective Jan. 1, setting minimum wage for outside employees and cleaners at 75% of the standard minimum wage for the industry, and for employees partially incapacitated by reason of age, injury, incompetency or infirmity, a minimum wage of 80% of standard minimum, with the provision that such employees shall not exceed 4% of total number of workers on the payroll of any employer. Maximum work-week for cleaners, and for outside employees, except in cases of emergency, was limited to 44 hours. President Sloan, of the Cotton-Textile Institute, recently issued a statement that wage differentials above minimum have been maintained under the code, pointing out that average hourly earnings in the industry for September were 36.4c. per hour, as compared with 35.8c. per hour in August.

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Group Curtailment Plans Strengthen Markets

Activity in gray cotton goods, which showed some improvement early in December, continued to gain momentum, especially in print cloths and broadcloths, until mid-month at which time volume buying reached fairly large proportions. Narrow sheetings and narrow drills, however, did not enjoy the same degree of improvement, but sentiment in the trade is to the effect that large purchases of these constructions are in prospect for January or early February. Fine combed goods were stronger about the end of December, revival of interest in that group largely due, as in other fabrics, to the announcement of January curtailment plans.

Gray goods prices gained fractions during December, with 38½-in. 64x60 print cloths advancing from 6½c. to 6⅝c.; 39-in. 80 squares rose to 9c. at the year-end from 8⅞c. on Dec. 1; 37-in. 48x48, 4-yd. sheeting remained unchanged at 6⅝c.

Production curtailment plans for the cotton sales yarn groups also resulted in price advances on carded yarns of 1c. to 2c. per lb., and on combed qualities increases of 3c. to 6c. per lb., which spinners declare are merely sufficient to compensate for the additional manufacturing cost under the curtailment.

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Oscar Johnston, of AAA, to Manage Cotton Pool

Oscar Johnston

Supervision of the cotton pool, created to liquidate the 2,400,000 bales of Government-held cotton covered by options to farmers, has been delegated to Oscar Johnston, director of finance of the Agricultural Adjustment Administration, as the result of his appointment by Secretary of Agriculture Wallace. Option holders wishing to obtain the 4c. per lb. initial payment on their option rights are required to execute an agreement to turn over option-cotton to the pool. The manager of the cotton pool is authorized to sell such cotton at any time that it may be marketed on the basis of 15c. per lb.

D. S. Murph, who has been chief of the cotton processing section of the Agricultural Adjustment Administration, has resigned to resume the private practice of law in South Carolina. The section will be abolished as a separate unit and its functions will be in charge of Cully A. Cobb, director of the cotton division of the AAA.

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Neisler Mills Form Own Sales Organization

Neisler Mills, Inc., Kings Mountain, N. C., whose drapery, bedspread, damask and napkin lines have been sold through Cannon Mills for the last several years, have organized a sales subsidiary, Neisler Mills Co., 66 Worth St., New York, which began business Jan. 1. William A. Barden, for the last 14 years in charge of the Cannon Mills department merchandising the output of Neisler Mills, is president of the new selling organization. Other officers of Neisler Mills Co., which will maintain branch offices in Chicago and St. Louis, are: Allen E. Julin and Henry C. Carls, vice-presidents; and George E. Weber, secretary and treasurer.

Combed Sales Yarn Committee Named

George A. Sloan, chairman of the cotton textile industry committee, recently announced the personnel of the combed sales yarn sub-committee of the code authority, as follows:

Benjamin C. Chace, Pawtucket, R. I.; Edward N. Cook, New Bedford, Mass.; Stuart W. Cramer, Cramerton, N. C.; H. A. Currier, New York, N. Y.; Philip Dana, Westbrook, Maine; George Knowles, New Bedford, Mass.; T. H. McKinney, Chattanooga, Tenn.; R. Grady Rankin, Gastonia, N. C.; E. F. Sherman, Providence, R. I.; and Arthur K. Winget, Albermarle, N. C.

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Hearings on Narrow Fabrics Code

A public hearing on the NRA code submitted by the Industry Group of the Narrow Fabrics Industry, claiming to represent 75% of the Industry, was scheduled to begin Friday, Jan. 12, in the Ambassador Hotel, before Division Administrator A. D. Whiteside.

The proposed code fixes a 40-hour maximum workweek and minimum hourly wages of 32½c. in the North and 30c. in the South.

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November Cotton Statistics

Statistics of particular interest in the cotton manufacturing industry, reflecting November operations and the raw material situation, were:

Spindle activity	96.3% of capacity, or 6,796,420,109 spindle hours.
Cotton consumption	475,368 bales
Cotton ginned (Dec. 20 report)	12,356,769 bales
Cotton exports	915,000 bales

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Cotton Mill Finances

West Point (Ga.) Mfg. Co., with plants in Georgia and Alabama, reported net profit of $947,292 for the fiscal year ended Oct. 28, compared with net loss of $398,613 for the preceding year. Total sales amounted to $10,965,092, an increase of 44% in dollar volume and 35% in unit volume. Directors declared a 1% regular quarterly dividend and a 1% extra dividend, payable Jan. 1, 1934.

Appleton Co., Lowell, Mass. and Anderson, S. C., reported net profit of $113,934 for the fiscal year ended Oct. 28, compared with net loss of $164,622 for the preceding fiscal year.

Pilgrim Mills, Fall River, Mass., declared a 1% dividend payable Dec. 22.

Otis Co., Ware, Mass., declared a $2.00 dividend payable Jan. 15, the first since 1930.

Nashua (N. H.) Mfg. Co. reports net earnings for the year ended Oct. 31 of $268,217 against loss for year previous of $835,896. The balance sheet at the close of the last fiscal year shows inventories to have doubled in 12 months. Notes payable amounting to $1,800,000 appear under liabilities.

Cannon Mills Co., Kannapolis, N. C., has declared a regular quarterly dividend of 25c. and an extra dividend of 15c. per share, payable Jan. 20 on stock of record Jan. 12.

Greenville, S. C. Among dividends paid in December are Judson Mills, $3.50 on A preferred; Dunean, $1 on common; Victor Monaghan, $1 on common.

Easley (S. C.) Cotton Mills, with branch plants at Liberty, S. C., will be reorganized and refinanced under plans recently approved by the preferred stockholders.

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Cotton Mill News

Avondale Mills, Pell City, Ala., plant, have installed 50 new looms ordered some months ago to balance production under hour restrictions of the code.

Morrillton (Ark.) **Cotton Mills, Inc.**, which have not been operated since 1928, were recently leased to C. V. Hoke and Ben Lessenberry, who will engage in the manufacture of cord and twine.

Gates Rubber Co., Denver, Colo., is said to be interested in acquiring an eastern or southern mill on tire cord. Reports of possible erection of such a mill in Denver are discounted in the East because the location is regarded as unsuitable.

Monroe (Ga.) **Cotton Mills** are installing 50 additional Draper Model E looms to balance weaving and spinning equipment.

Martha Mills, Thomaston, Ga., division of B. F. Goodrich Co., recently started construction of a 35,000-spindle tire cord mill, to be known as Unit B, for which permission has been granted by NRA headquarters. Machinery will be transferred from Nashawena Mills, New Bedford, Mass. Contract for the new building, which will be three stories and basement, 132x350 ft., has been awarded to Batson-Cook Co., West Point, Ga. Completion of project is expected by April 1.

Mary Delia Mfg. Co., Inc., Thomson, Ga., has been organized to acquire and operate the former **Lullwater Mfg. Co.** plant, purchased some time ago by C. L. Upchurch & Sons, Athens, Ga.

Tupelo (Miss.) **Cotton Mills, Inc.**, have replaced 60 looms with an equal number of more modern type, and installed six additional cards.

Vann-Moore Mills Co., Franklinton, N. C., has been placed in the hands of Don P. Johnston, Wake Forest, N. C.,

Kinston (N. C.) **Cotton Mills Co.**, a 16,000-spindle carded yarn plant, has been purchased for $112,000 by Wachovia Bank & Trust Co., Winston-Salem, N. C., at public auction.

Manville-Jenckes Corp., Loray, N. C., plant, has work well underway on the installation of 150 42-in. Draper automatic looms, which have arrived at Loray from Rhode Island. They are being installed in the basement of the main building on a new maple floor. About 469 additional similar looms are being shipped to the Loray plant and will be installed as they arrive.

Elizabeth James Mills, Marion, N. C., have approved plans for extensions and improvements in plant; program to cost over $40,000.

Advance Thread Corp., Salisbury, N. C., has been incorporated to manufacture textiles. Incorporators are: F. B. Gardner, M. C. Gardner and William Hardon.

Spray (N. C.) **Cotton Mills** are erecting addition to house eight new twisters.

Anderson (S. C.) **Cotton Mills** are understood to have plans for a 12,000-spindle addition, costing approximately $75,000, for which engineering will be handled by J. E. Sirrine & Co., Greenville, S. C.

Appleton Co., Anderson, S. C., has work under way on electrification program. All divisions of plant, including dye house and bleachery are included in the work, which will cost over $150,000, with machinery. J. E. Sirrine & Co., Greenville, S. C., are consulting engineers.

Wellington Mills, Inc., recently acquired the property of **Gluck Mills**, Anderson, S. C., cash consideration being $248,670. Management unchanged.

Riverdale Mills, Enoree, S. C., controlling interest was purchased by James A. Chapman, recently the operating president, from Hunter Mfg. & Commission Co. at auction Jan. 9.

Fort Mill (S. C.) **Mfg. Co.** awarded contract to Walton Plumbing Co., Rock Hill, S. C., to install water and sewerage facilities in 277 dwellings.

Jackson Mills, Iva, S. C., has had carding and spinning machinery overhauled, and 100 additional looms added. A temporary wooden addition has been erected to house more cards.

Manville Jenckes Co., Pawtucket, R. I., will pay creditors 57c. on the dollar, according to a receivership report approved by court.

Carolina Cotton & Woolen Mills, Fieldale, Va., plant, is changing over 80 spinning frames to long draft. Mason P. Thomas, of Whitin Machine Co., is in charge of the work.

Canadian Spool Cotton Co., Montreal, Que., has awarded contract for construction of one-story brick addition to the bleach-works division of the mill buildings.

TEXTILE WORLD'S

Wool Digest

THE wool industry should not overlook the possibilities for balancing production with demand which other branches of the textile industry are finding in NRA codes.

In making this suggestion, we are not trying to pre-judge the situation in so far as the need, or lack of need, for curtailment exists just now. Rather, we are pointing out that the machinery for curtailment exists, and should not be lost sight of.

Most wool manufacturers with whom we talk are quite decided in their belief that an 80-hour week for productive equipment is not warranted for any considerable length of time, under present conditions. Consequently, it would seem probable that the industry might eventually find occasion to seek the same sort of curtailment permission from the NRA, as did the cotton, silk and hosiery groups.—*Editor.*

Still at Work on Trade Practices

Public hearings before Divisional Administrator Whiteside will be held Jan. 20 on the industry's Rules of Practice for piece goods sales, blankets, commission combers and sales yarn.

The trade practice rules recommended by the wool goods sales division to the industry's code authority have been the subject of further meetings through December. One of these was a joint meeting with representatives of clothiers and Divisional Administrator Whiteside in Washington. There are a number of points to which clothiers take exception, one of them being the provision that mills may sell goods subject to credit checking which the clothiers state gives the mill a means for reneging on delivery while the buyer has no such opportunity to cancel or stop shipment. Jobbers of wool goods have objected to the f.o.b. mill proposal on the ground that it makes them absorb freight rates between mill and their warehouse. There is also objection to alleged shortening of terms. It is understood that the Administration favors provisions requiring filing of price schedules.

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Terms for Yarn Sales

Terms for wool yarn sales as amended recently follow:

1. Weaving yarns: The maximum terms shall be 2%, 10th prox., net 60 days from date of invoice. No redating. Anticipation to be at the rate of not more than 6% per annum. Additional time is to be charged for at a rate of not less than 6% per annum. Shipments shall be f.o.b. common carrier most convenient to the mill, or if prepaid by the mill, or delivered by the mill's own truck, the cost of delivery from the mill to the customer shall be charged for on the invoice as a separate item not subject to discount.

2. Knitting yarns: The maximum terms shall be 3% 10 days or 2%, 10 days, 60 extra net 71 days from date of invoice. No dating anticipation to be at a rate of more than 6% per annum. Additional time to be charged for at a rate of not less than 6% per annum.

Wool Manufacturers to Meet Again Feb. 14

The next general meeting of the wool industry is scheduled to be held Feb. 14 at Hotel Commodore, New York, under auspices of National Association of Wool Manufacturers. There will be election of directors at large and reports of committees on market promotion and business rationing schemes.

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Wool Goods Sellers Optimistic on Spring

The wool goods market was seasonally quiet through December. After the end of the month mill agents found a gradually reviving interest which they interpret optimistically. Already a moderate amount of new business on both men's and women's wear for delivery through March has been recorded. During the next few weeks women's wear is expected to be the more active as buyers of these lines are less well covered. Probability is for a good spring in dress goods lines and holding back by buyers is believed to be largely a matter of caution on style rather than anything else.

Men's wear operators are cautious and give evidence of pressing for goods in the popular price range from $1.50 to $1.80 which are suitable for $22.50 garments. Mills cannot give last year's quality in such lines but presentable fabrics can be offered. It is thought that many consumers will stick to retail price ranges rather than follow quality. Some disquietude is expressed as a result of recent cut price retail sales. Some merchants argue that stocks are not burdensome enough to warrant the sacrifice, but after all the move helps to cushion the rise to the consumer and gives a more liquid position to retailers at the start of the spring season. Clothiers' readjustments of orders were completed early in December so that the year-end statements might be in good balance. Retail trade as a whole has been fair.

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Tops Start Year With Strength

Wool tops futures closed on Jan. 5 at about the highest levels touched at any time during 1933. These levels were fractionally higher than those of Dec. 1 but as much as 4c. higher than the lows recorded around the middle of the month. Boston spots held unchanged over the period from Nov. 24 to Jan. 5 at $1.11½. Recent activity was chiefly on July, August and September and the nearer months and spots were very quiet. Topmakers have been independent, however, and have consistently turned down offers below the full market. Tops at Bradford, Antwerp and Roubaix in the first week of the new year were uniformly strong.

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Wool Starts New Year Generally Strong

Wool opens 1934 at the highest price level for many months. There is no disposition on the part of holders to push sales nor any desire to boom prices on short supplies. Maintenance of a steady to strong market is regarded as helpful to the goods market as any major decline in value would be reflected all along the line through tops and yarns into goods. Leading factors estimate total unsold wool at 70,000,000 lb. which includes 8,000,000 lb. of fall Texas wool. Consumption of domestic wool (grease basis) for the year 1933, with an allowance of 23% for non-reporters, is estimated at about 500,000,000 lb.

Most dealers consider the outlook as favoring higher prices up until the time of the arrival of the new clip and even then, with the expected semi-governmental control of the raw material, there seems little likelihood of any decline. Dealers are disposed to follow the prices set for disposal of government owned wools and government action therefore in effect pegs the market.

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National Wool Trade Association Set Up

On Dec. 11 was held the first of a series of meetings in Boston which resulted in the formation of the National Wool Trade Association, the most broadly representative group of its kind ever formed in the United States. By Dec. 20 permanent organization was effected and Robert L. Studley, of Studley & Emery, Boston, elected president.

Durham Jones, of Hallowell, Jones & Hallowell, Boston, and Herbert K. Webb, of C. J. Webb & Sons, Philadelphia, were elected vice-presidents. Claude H. Ketchum was elected secretary and treasurer with headquarters at 263 Summer St., Boston. Mr. Ketchum

is a former president of the Boston Wool Trade Association and until recently a partner in Cordingley & Co. Over 125 applications for membership have been received from ten different States.

This new body is the outgrowth of need for a national body to speak for the country's wool trade under NRA code requirements. Those eligible to membership include "any person, firm or corporation" that is engaged in the wool trade in the United States. Thirty-five directors have been elected who are representative of the body's far-flung interests.

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Carpet Wholesalers Suggest Sales Policy

The National Association of Wholesale Floor Covering Distributers has suggested a schedule of selling policies to the Institute of Carpet Manufacturers of America. Among items involved are the following: elimination of consignments to wholesalers, classification of mail-order houses with retailers, establishment of zone price lists with no published f.o.b. mill lists, rebate of 2 to 8% to retailers on volumes of $1,500 to $24,000, rebate of 2 to 5% to wholesalers on volumes of $30,000 to $250,000, invoice price to wholesaler to be list less 15%.

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24 Bidders on Army O.D. Contract

When the government called for bids on 940,329 yd. of 20 oz. olive drab, type C, suiting 24 bidders responded offering varying quantities at prices ranging from $1.59½ to $2.60. It seemed probable that the government could cover its needs in the quantities offered at under $1.89. Bidding was of market interest as indicating probable possession of low priced lots of wool by the low bidders. The American Woolen Co. was the only firm bidding on the total quantity. Its bid was $1.82½ for 300,000 yd., $1.85 for 300,000 yd. and $2.00 for 340,329 yd. Most of the bidders bid on 25,000 and 50,000 yd. lots. Fabric is for the Army and bids were opened by the Quartermaster in Philadelphia, Jan. 3.

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Activity of Industry

Current statistics on wool consumption and mill activity follow, the activity percentage being based on single 40 hour shift, 5½ days per week:

	November	October
Wool consumed:		
Total clean equivalent (excluding carpet)	15,855,000	17,512,000
Carpet wool (grease)	7,679,000	10,881,000
Activity, machinery		
Looms (50" and wider)	82.0%	82.4%
Carpet looms	59.6%	65.2%
Combs	123.1%	142.7%
Worsted spindles	74.1%	85.9%
Woolen spindles	81.1%	92%

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Wool Mill News

Hockanum Mills Co., Rockville, Conn., is installing oil burning equipment in its boiler plant. Two 25,000 gal. tanks are included and pumping equipment.

Brookside Woolen Co., South Glastonbury, Conn., recently organized by A. Pagani, R. J. Gorman and M. R. Durre, has taken over the local mill of Glazier Mfg. Co., Hopewell Village, idle for about two years. Acquisition includes about 12 acres of land, with water rights. It is understood plant has been placed in service.

Mack-Chisling Corp., New York, has leased part of Warren Woolen Co. plant, Stafford Springs, Conn. The concern has operated in smaller quarters for several years and manufactures lining materials for neckties.

Georges River Woolen Mills, Warren, Me., at present running full, have been sold to a corporation which will continue under the same name. James MacDougall, of Fairfield, is president of the corporation; George W. Walker, of Warren, is vice-president, and Lionel F. Jealous, of Lebanon, N. H., is treasurer. Mr. MacDougall was formerly agent for the American Woolen Co. in various communities. Mr. Walker is a former State senator, became associated with the mill when founded in 1878 and has been superintendent since 1898. Mr. Jealous was lately with the Lebanon Woolen Mills and is son of F. H. Jealous, for a number of years till his retirement with the American Woolen Co.

Germania Mills, Holyoke, Mass., realized $53,480 in sale of some of its machinery last month. Work is being concentrated in worsted spinning department, the woolen side of the business having been discontinued.

Hamilton Woolen Co., Southbridge, Mass., has started construction of an office building at its mill.

Yale (Mich.) **Woolen Mills** have arranged for lease of portion of former automobile plant of the Wills-St. Claire Co., Marysville, Mich., and will remodel and equip for new branch mill, to be ready for service early this year.

F. C. Huyck & Co., Rensselaer, N. Y., has nearly completed erection of its new warehouse which will cost about $16,000.

Pellisier, Jonas & Rivet, Inc., have started up a modern plant at Walden, N. Y., on fur fibers for textile yarns. They were formerly located in Brooklyn, N. Y. They also cut hatters' fur.

Carolina Cotton & Woolen Mills Co., Spray, N. C., has announ d the resumption of operations at its Rhode Island mill, which will manufacture fine woolen and mixed fiber suitings, under the name of the Rhode Island Suiting Mill. The personnel includes J. W. Price, plant superintendent; W. P. Barton, head of carding and spinning; T. M. Robbins, J. R. Berkley and G. E. Odell. W. F Hundley is superintendent of the dyeing division, which has been operating right along.

James Lees & Sons Co., Bridgeport, Pa., plans early construction of new addition to mill. Bids have recently been asked on general contract. Ballinger Co., Philadelphia, Pa., is architect and engineer.

Brookheim Worsted Mills, Inc., have been formed with plant at Providence, R. I. Officers of the new corporation are: president, William Oheim; treasurer, Gilbert F. Brooks; assistant treasurer, Raymond A. Balcom. Mr. Brooks was formerly associated with the Stokes-Brooks Worsted Co., Central Falls, R. I. A line of men's wear will be manufactured.

Edmonton, Alberta. Establishment of a small woolen mill on yarns and blankets is contemplated by W. J. Trott and James Kinney of Lacombe, Alberta. The mill will be established either at Lacombe or Edmonton.

Hanson Woolen Mills, Hull, Que., through G. E. Hanson, proprietor, has purchased plant of **Yorkshire Wool Stock Co.**, Almonte, Que., and same is again in operation.

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Wool Mill Finances

American Woolen Co. will probably show net earnings of about $2,500,000 for 1933 according to opinion in financial circles and a dividend of $4 per share is expected this month on the preferred.

Arlington Mills, Lawrence, Mass., declared a dividend of $1 per share payable Jan. 15 to record of Dec. 27. This payment follows a lapse of 6½ years, the last previous dividend having been paid in July, 1927.

Hamilton Woolen Co., Southbridge, Mass., with a final dividend declaration of $3 per share paid Dec. 27, paid a total of $8.20 during 1933.

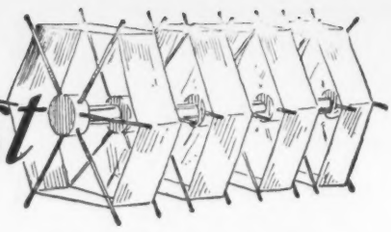
Sanford (Me.) **Mills** declared a dividend of $1 per share payable Jan. 15; in January, 1933, the rate was 25c.

Collins & Aikman Corp. reports for nine months ended Nov. 25, net profit of $847,159. This compares with a net loss of $579,240 in similar period year before.

Guelph (Ontario) **Carpet & Worsted Spinning Mills, Ltd.**, reports net earnings from operations for year ended Sept. 30 of $138,312, compared with $152,118 in 1932 and $166,103 in 1931.

TEXTILE WORLD'S

Silk Digest



ELECTION of Paul C. Debry as president of the Federated Textile Industries, Inc. (successor to the Silk Association of America) recalls to mind the sensation which Mr. Debry created in the trade in 1932 when he predicted publicly that silk would gradually be eliminated as a fashion leader by rayon. It was recognized that he spoke with authority, in view of his own company's conspicuous work in the development of fabrics from synthetic yarns.

At that time, we reported in these columns that the silk industry regarded the then current instability of silk prices as a purely temporary condition and believed the natural fiber would "resume its normal position when business conditions become normal."

This expectation has not been fulfilled as yet. Last year, silk consumption fell off sharply while the use of other textile fibers made noteworthy gains. This fact undoubtedly played an important part in the decision to change the name of the Silk Association.

We have expressed misgivings concerning the ambiguity of the organization's new title. We have no misgivings, however, with regard to the type of leadership which Mr. Debry will exert. His selection was a happy one—and particularly so at this time of radical transition in the field served by the association.—*Editor.*

Debry Heads New Silk Federation

The Federated Textile Industries, Inc., which has been organized by the various divisions of the silk industry to succeed the Silk Association of America, formally began operating in its new identity on Dec. 29, when the board of directors met in New York and elected officers. Paul C. Debry, president of Duplan Silk Corp., New York, was elected president. G. H. Conze, Susquehanna Silk Mills, was elected vice-president, and Ramsey Peugnet, for many years executive secretary of the late Silk Association, was made executive vice-president and treasurer. L. L. Blunt will act as secretary.

The choice of Mr. Debry was interpreted in the market as a move to unite manufacturers of silk-and-rayon woven fabrics under the leadership of the federation. Mr. Debry's company specializes in synthetic fiber fabrics, these lines constituting the bulk of the firm's output. He himself has long been outspoken regarding the future of rayon in woven goods, and nearly two years ago he delivered an address in New York in which he predicted the ultimate leadership of rayon in the field of quality textiles.

The executive committee of the federation comprises: Paul C. Debry, G. H. Conze, B. Edmund David, of David Silks, Inc., Irving Levy, of Century Ribbon Mills, Inc., and Ramsey Peugnet. The board of directors as completed to date includes representatives of seven separate branches of the silk industry.

It was also announced that the first annual dinner of the new federation would be held Tuesday evening, Feb. 13, 1934, at the Waldorf-Astoria Hotel, New York City.

Paul C. Debry, president, Federal Textile Industries, Inc.

G. H. Conze, vice-president, Federated Textile Industries, Inc.

Complete Code Authority

The Federated Textile Industries, Inc., announces the complete personnel of Silk Textile Code Authority as follows:

K. B. Blake, Cheney Bros.; Louis E. Cohen, Prudential Silk Mills; B. Edmund David, David Silks, Inc.; E. C. Geier, Duplan Silk Corp.; C. D. Jencks, Hamlet Textile Co.; Fred A. Kattermann, Kattermann & Mitchell, Inc.; Sol. C. Moss, Moss-Still, Inc.; W. W. Metcalf, Portland Silk Co.; John R. McGinley, Phillipsburg Silk Co.; James P. Quinn, The Taylor-Friedsam Co.; Ewald H. Schniewind, Susquehanna Silk Mills; James A. Goldsmith, Hess, Goldsmith & Co.; Henry E. Stehli, Stehli Silks Corp.; and Lucius Root Eastman, the last-named being the NRA representative.

Fabric Outlook Better

Two favorable factors contributed to optimistic sentiment in the broadsilk market during early January; these were: First, the expectancy of improvement in stock position as a result of the 25% curtailment ordered by the Code Authority at the instance of General Johnson; and, second, the healthy outlook for spring prints. The first week of the new year was, as usual, devoted mostly to inventories, although some firms reported considerable inquiry regarding new lines.

It is clear that prints are not going to have things entirely their own way as regards sales during the next few weeks. A fair amount of business for plain fabrics is still being placed, and further buying is looked for, with the demand centering on black-and-white, navy and some medium shades. The call for the gay spring florals is not expected to show itself for another month; but the deeper-toned prints should move moderately well toward the end of the current month.

25% Cut Seen Aid to Market

Approval by General Hugh Johnson of the request for a 25% cut in silk goods production, and increased vigilance toward enforcement of code provisions were the features of the month in the activity of the Silk Code Authority. The 25% reduction in output was hailed generally in the industry as a step toward stabilizing the market.

General Johnson's ruling followed a hearing held in Washington Dec. 18, at which James A. Goldsmith, general secretary of the code authority was the chief speaker. He urged curtailment to arrest the current decline in fabric prices; stocks on hand in the industry on Nov. 25, 1933, were 23,095,000 sq.yd., he declared, which was enough to carry the industry for four months; he said a 2½ months' supply is usually the maxi-

mum. The curtailment order became effective Dec. 22, and ends Jan. 20, inclusive, during which period no productive machinery must be operated more than 240 hours in all.

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Lack of Buying Sends Silk Down 5c

Sluggish demand contributed to continued weakness in the raw silk market through December, and the price of Crack Double Extra 78% receded from $1.47½ on Dec. 1 to $1.42½ on Jan. 2, with little prospect that the 5c drop would be caught up during the current month. Silk stocks in New York the first week of January were estimated by importers at 100,000 bales, and those ready for export in Japan at about 35,000 bales. Prices in Japan are stronger than those in New York, a somewhat paradoxical situation as the morale among silk reelers is none too good. Importers complain of persistent laxity in Japan as regards the quality of raw silk being shipped here, and they tell of numerous instances where American buyers of raw silk have rejected shipments as of inferior grade.

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E. L. Starr Heads Silk Campaign

Plans for the silk promotional campaign took concrete form during December, with the announcement that Ernest L. Starr, former managing director of the Durene Association of America, had been named managing director of the International Silk Guild, Inc. The Guild has opened offices at 250 Fifth Avenue, New York. In telling of Mr. Starr's appointment, the board of directors of the Guild issued a statement outlining the purposes of the organization. The program, it was stated, assumes two phases: First, the correction of internal mistakes and abuses grown up within the industry through many years; and, second, the education of allied trades and the public to the worth and uses of silk.

Mr. Starr immediately began the task of building an organization and on Jan. 3, two appointments were announced: Miss Kathryn Day took the post of fashion counsel and Miss Grace Walton that of merchandising counsel and education adviser. One of the first steps in the silk campaign, it is understood, will be the establishment of a trademark.

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Raw Silk in Storage

The following figures on raw silk delivered to mills in storage, etc., for the month of November, 1933, are announced by Federated Textile Industries, Inc.:

	Figures in bales
In storage Nov. 1	93,625
Imports during Nov.	32,319
Total available during Nov.	125,944
In storage Dec. 1	91,122
Approx del. during Nov.	34,822

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Knowles Heads Throwsters

The board of governors of the Throwsters Research Institute, Inc., met in New York, Dec. 29, and elected the following officers for the ensuing year: President, C. J. Knowles, of Pen Argyl Silk Co.; vice-president, Neil Butler, of Richard V. Butler Co.; and treasurer, A. G. Schautz, of Grove Silk Co. Dean Hill was reappointed executive secretary. Mr. Knowles' election as president automatically makes him chairman of the code committee.

Discussion on commission throwing prices featured the annual meeting of the Throwsters Institute which was held Dec. 16, at Stroudsburg, Pa. Many throwsters at the meeting contended it was impossible to pay code wages at existing price levels for throwing and still keep their organizations solvent, and that heavy losses were being suffered. The meeting adopted resolutions urging the Code Administration Committee to amend the throwing code to permit control of the installation of additional machinery. Registration of productive machinery as of Jan. 1, was ordered by the NRA on Dec. 28.

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Satin Leads Sales

Satin led fabrics sold in silk departments of New York City retail stores, the Fashion Bureau of Federated Textile Industries, Inc., reports in its summary of November piece goods sales. Eighteen per cent of sales were in plain satin, 4% in rough satin. Velvets accounted for 16% of sales. Black was the leading color, totaling 25% of sales, pastels followed with 17%, brown with 11% and white with 10%.

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Duplan's Profits Rise

Decisive gains in net profit during the June-to-November period have been reported successively for three years by the Duplan Silk Corp., it is disclosed in the company's figures. In the six months ended Nov. 30, 1933, this firm's operations brought a net profit of $475,834, as compared with $277,228 in the same period in 1932 and $142,733 in the 1931 period.

Silk Mill News

Marshall Field & Co., Chicago, Ill., is preparing to manufacture and sell an extensive line of neckwear and muffler fabrics from its mills around Spray, N. C. William C. Russell, lately of Cheney Bros., will be in charge of production and sales.

Hampshire Throwers, Inc., Haydenville, Mass., a subsidiary of **College Weavers, Inc.,** Northampton, Mass., have installed 4,000 additional spindles bringing the total to 9,000. Addition of these extra spindles completely fills available space.

Price & Price, Ridgewood, N. J., have taken over the former mill of the **American Silk Label Mfg. Co.,** Brookside Ave., Sussex, N. J., and will remodel and improve for new plant for production of broad silks. It is proposed to remove branch mill at Allentown, Pa., to new location during January.

Colonial Mills, Inc., Karl Robbins, president, has acquired control of the **Pinehurst Silk Mills,** Hemp, N. C. The mill will be under the management of Mr. Robbins, who will also be president.

Lexington (N. C.) **Silk Mill** has constructed an addition to be used for yarn preparation and so release space in the main building to permit installation of additional looms.

Edinburg (Va.) **Silk Mills, Inc.,** recently organized with capital of $25,000, will operate a local weaving and processing mill. F. C. Dinges is president of new company.

American Silk Mills, Orange, Va., have completed a two-story addition providing 17,000 sq.ft. floor space to be used for weaving. Local business men advanced the money for this building which is to be repaid within 10 years with interest.

Canadian Silk Products, Ltd., Sherbrooke, Que., is considering a plant addition, according to A. A. Munster, managing director.

Bruck Silk Mills, Ltd., Cowansville, Que., has work under way on addition to weaving mill, totaling about 10,800 sq.ft., and expects to occupy in near future. Addition to boiler plant, with installation of new equipment, is under consideration.

Bruck Silk Mills, Ltd., for the year ended Oct. 31, showed net profits of $178,128, compared with $30,258 in the preceding year.

TEXTILE WORLD'S

Rayon Digest

THE year 1933 will be remembered in the synthetic fiber market as one in which price stability returned. Early in the year, the decline was halted, successive advances were put rapidly into effect, and then the market settled down to a stable basis.

In recapturing this element, the industry has won back what we have often pointed out as one of its principal assets—and one which is not so easily within the grasp of the natural fiber sections of the trade.

It is to be hoped that, through careful control of production schedules and intelligent direction of merchandising practices, sharp and erratic changes in the price structure may be avoided in the future.—*Editor.*

Yarn Outlook for 1934 Strong

Decidedly oversold on many of the more popular deniers and with no early prospect of any let-up in buying, the rayon industry had reason to regard immediate outlook for 1934 as encouraging. Statistics on year-end stocks are not yet available, but these are believed to be small, with the possible exception of the acetate division. Even the acetate carryover, however, cannot be more than moderate, as this type of yarn moved at a good pace during the year just closed.

Early-January demand for viscose process yarns emphasized the dull-luster numbers. Producers were selling to Feb. 28 and most firms were understood to be pretty well covered for January output. Volume demand continued to center on 150s and 125s, though there has been a perceptible rise in the call for 100s during the early weeks of the new year.

Price tone of the market is firm, and may be expected to remain so; producers are hesitant to commit themselves as to the possibility of any industry-wide advance.

Textile Organon, of Tubize Chatillon Corp., in the January issue, states that rayon consumption in 1933 set a record, 31% above 1932, and 22% above 1931.

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Price Rise Sets Cone Differential

An upward trend in viscose rayon cone prices, which most producers were expected to follow, was initiated Dec. 27, by the Industrial Rayon Corp., Cleveland, O. This firm announced that effective Jan. 1 on all new orders, the price of 150 denier yarn would be 3c. higher per lb. on cones than on skeins. Hiram S. Rivitz, president of Industrial, explained that the differential was established to equalize the cost to the weaver who purchases the yarns in skeins. The advance will affect business already placed only if delivered subsequent to Feb. 28.

The DuPont Rayon Co. took similar action on Dec. 29, and it was expected that the new differential would be established generally. It is restricted to 150 denier, though some firms already have a differential on 125 and finer deniers.

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New Weavers Committee

Appointment of a sub-committee of the Cotton Textile Industry Committee, the code authority, to represent the rayon weaving branch of the industry was announced Dec. 14, by George A. Sloan, president of the Cotton-Textile Institute. The sub-committee comprises: G. Edward Buxton, Providence, R. I.; Robert E. Henry, Greenville, S. C.; Percy S. Howe, Jr., New York City; J. Spencer Love, Burlington, N. C.; Seabury Stanton, New Bedford, Mass.; and Charles Walcott, Boston, Mass. This committee, it is stated, will concentrate on formulation of plans for regulation of production in its branch of the industry.

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Patent Settlement Revives Pool Plan

Interest in the possibility of establishing a rayon patent pool has been greatly stimulated by the news that the suits against Industrial Rayon Corp. instituted by the Tubize Chatillon Corp. have been settled. J. E. Bassill, president of Tubize Chatillon, announced Dec. 18 that the settlement involved complete acquiescence in the validity of Tubize's ownership of U. S. patents 1,725,742 and 1,875,894 pertaining to the delustering of rayon by use of pigments, and also that the Industrial Rayon Co. was negotiating for future operations under a royalty basis.

Since numerous other producers are understood to use the pigmenting method in question, the affirmation of Tubize's claim has general significance. Facing the prospect of paying royalties to Tubize, producers are again considering the idea of pooling all their rayon patents. Spokesmen for Tubize declined to commit themselves on this question, but indicated that the pool plan was being carefully studied.

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Industrial, DuPont Advance Wages

Improved business conditions in the rayon industry were reflected in wage raises and other moves beneficial to labor which were announced during the month. The DuPont Rayon Co. announced that wages of all operating workers had been raised to a point where most of the workers earn as much, some more, than in 1929. The increase affects all DuPont plants. The Industrial Rayon Corp. made known on Dec. 17 that a general wage increase for its 3,600 employees, advancing the rates to about 15% above 1929, had gone into effect, retroactive to Dec. 4.

Vacation plans also are being developed by various firms, it is reported. The DuPont Co. made public early last month an arrangement by which all employes would get vacations with pay, provided they have been with the firm for one year. Previously all operators' vacations were at the expense of the employee. The DuPont vacation schedule became effective Jan. 1. The Viscose Co. of Va., has advised employees on its policy on unionization under NRA.

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Furness Reopens

The Furness Corp. plant at Gloucester, N. J., which had been partially closed from Dec. 18 to Jan. 2, is now in complete operation, with sufficient orders on hand to keep the plant continuously running. Raymond W. Baker, of Philadelphia, a co-receiver of the Furness company, stated Dec. 20 that the company had been operated successfully under permanent equity receivership. He said the plant had operated normally, except for one division which was closed in December for inventory and which has just reopened.

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Photos from United Rayon

Readers will be interested to know that the group of photographs illustrating the various operations of throwing silk and rayon published on pages 87 to 90 of the December issue of TEXTILE WORLD were taken in the plant of the United Rayon Mills, Fall River, Mass.

Tubize Buys Knitting Mill

Further evidence of the trend among rayon producers toward vertical integration became manifest on Dec. 12, when John E. Bassill, president of Tubize Chatillon Corp., New York, announced that his firm had purchased the machinery and equipment of the Janome Rayon Corp., manufacturers of tubular knit underwear fabric located at Brooklyn, N. Y. The equipment is being moved to the Tubize Company's plant at Hopewell, Va., where the tubular knitting equipment of the Argus Knitting Mills, purchased last spring, is already installed. Mr. Bassill added that the Janome purchase places Tubize in an important position in the tubular rayon cloth business, giving it an annual output of about 8,000,000 lb. of knitted fabric. Since the Argus purchase was announced at the time to be in the nature of an experiment, the newer acquisition is interpreted to mean that the company had found the experiment to be successful.

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Plan Weaving Mill

Plans for the establishment of a rayon weaving mill at Cohoes, N. Y., by interests associated with the Beaunit Mills, of New York, became known Dec. 20, with the announcement by A. A. Abbott & Co., realty brokers, of New York, of the purchase of two buildings which constituted part of the Cohoes holdings of Harmony Mills, of Boston, Mass.

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Advanced Rayon Course

An evening course in rayon for advanced students will be given at Columbia University, New York, beginning Thursday, Feb. 8, by Herbert R. Mauersberger, textile consultant. It will supplement the elementary rayon course and will comprise 15 lectures; fabric construction including analyses and testing of fabrics will be covered, as well as methods used in finishing, dyeing, printing and creping, etc., and costing.

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Japan's Exports Rise

A sharp increase in the export of yard goods was the chief feature of Japan's rayon progress during 1933, according to a report from Vice Consul W. P. McConaughy, Kobe, to the Department of Commerce. He stated that during the first nine months of 1933 Japan exported 125,722,000 sq.yd. of rayon fabrics against 106,869,000 in the same period in 1932.

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Moss Heads Converters

Sol C. Moss, Moss-Still, Inc., has been elected president and executive director of the Textile Converters Association of America, Inc. Louis Lazar, Duplex Silk Mills; Walter Ross, J. Rosenholz; and J. Y. Wilkins, Goldstein-Wilkins Corp., have been elected vice presidents; Louis Alpren, of Alpren Bros., treasurer, and Edward Greenberg of E. & F. Greenberg, secretary. It was announced Dec. 22 that this organization had decided to withdraw from the Silk Association and would not be a member of Federated Textile Industries, Inc.

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Board Pushes Wage Survey

Announcement by the National Labor Board that plans were under way for a survey of wages in the silk and rayon weaving industry, constituted the chief development of the month in industrial relations. Senator Robert F. Wagner stated Dec. 18 that the board would appoint an agency to conduct the survey. The aim of the investigation is to determine the alleged disparity of wages between the silk mills and the rayon mills.

Settlement of the prolonged broadsilk strike which was affected early in December has greatly helped to clear the air as regards labor problems.

Drawn by Rudolph Shutting, Chattanooga

American Enka Corp., Enka, N. C., showing plant addition just behind clock tower.

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Rayon Mill News

American Enka Corp., Enka, N. C., has more than 250 men at work erecting the plant addition which is to cost $1,000,000. The present plant operative force of 2,500 will be increased when the addition is completed by March 1.

Tubize-Chatillon Corp. has completed arrangements for full payment of the first mortgage 7% village bonds of the American Chatillon Corp., which matured on Jan. 1. Tubize-Chatillon assumed the obligation of its predecessor company at the time of the reorganization some years ago. The principal amount of the issue is $2,000,000. Tubize-Chatillon earnings available for bond interest totalled $1,283,552 in the first ten months of 1933 or more than ten times the interest requirement. A better showing is expected next year due to 30% increased capacity which should reduce costs.

Burlington, N. C., will soon have a new plant for manufacturing silk, rayon and acetate piece goods. According to information V. P. Armfield, a native of Asheboro, N. C., will be general manager; W. M. Transou, Jr., Greensboro, office manager, and Henry Diekman, Paterson, N. J., general superintendent.

Iredell Mills, Mooresville, N. C., formerly weaving division of Cascade Mills, Inc., but now owned and operated by the Burlington (N. C.) Mills Co., are installing 200 new Draper looms for rayon goods.

Cleveland Cloth Mills Co., Shelby, N. C., has work under way on installation of new automatic looms and auxiliary equipment in addition, 112x300 ft., recently completed, and proposes to have the unit ready for service this month. Other equipment will also be installed, including laboratory apparatus in new two-story laboratory structure.

Industrial Rayon Corp., Cleveland, Ohio, has suspended action on its proposed expansion in Cleveland because the city's sewer project is held up.

Canadian Celanese, Ltd., Drummondville, Que., through its general manager C. W. Palmer, announces that its expansion program will be completed by the installation of the last of the 1,000 looms which will be in full operation early in the current year. Canadian Celanese paid a further 1½% on the preferred dividend arrears on Dec. 30. This reduces the arrears to 26½% per share.

TEXTILE WORLD'S

Knit Goods Digest

WHEN the first Knitwear Industrial Exposition was proposed for 1933, many skeptics predicted that it would never take place—or that, if it did, there would never be a second show. Business was just too bad, that was all there was to it.

And yet the exposition was held in practically the low point of the depression—and was a success. And the second annual event takes place in Grand Central Palace, New York, Feb. 12-16.

The National Knitted Outerwear Association deserves credit for its courage and vision in projecting the exposition, and for its efficiency in carrying out its plans.—*Editor.*

Underwear Institute To Meet Feb. 20

December was a month of important activities for the Underwear Institute, Washington, D. C. The executive and industry committees decided, Dec. 13, to substitute the words "not standard size" for the term "sub-standard" in the marking of underwear merchandise with respect to measurements. This rule will apply wherever any garments are not made in accordance with the specifications set by the Bureau of Standards and the industry. It was announced Dec. 14 that the executive committee had voted in favor of holding the annual meeting of the Institute Feb. 20, at the Mayflower Hotel, Washington.

•

Cheney on Statistics

Intelligent compilation and use of statistics by industry with the cooperation of the government is vital to recovery, Roy A. Cheney, executive secretary of the Underwear Institute, Washington, stated Dec. 29, in an address before the American Statistical Society in Philadelphia. Mr. Cheney cited three key steps in the application of statistics to business: First, research; second, education of industry in applying statistics to business; third, a follow-up to see that the teaching is actually utilized in industry.

•

Underwear Code Changes Asked

Several amendments to the code of the underwear and allied products industry were scheduled for hearing Jan. 19, in Washington, before Division Administrator Whiteside of the NRA. The hearing was called at request of the industry committee which had proposed a number of changes, including the following: Insertion of a new clause in the code providing that before installing new machinery, except where such machinery is used for replacement, knitters must secure from the administrator a certificate confirming that each installation is consistent with the policy of the NRA.

It was announced Dec. 18 that Deputy Administrator H. B. Ludlum, Jr., had been appointed a member of the industry committee to represent the NRA in administration of the underwear code.

•

Spring Underwear In Early Demand

An increase in mail orders was noted by leading underwear mills during the first part of January, these orders being mostly for winterweight merchandise for immediate delivery. There were, however, an encouraging number of spring commitments and the prospects for active spring business at the end of this month are considered to be good.

•

T. R. Durham, Secretary of Southern Group

Plans for the establishment of headquarters for the Southern Association of Hosiery Manufacturers have been developed by Taylor R. Durham, banker, of Chattanooga, Tenn., following his election as secretary of the association. The organization is stated to have about 200 members and was formed to represent southern hosiery manufacturers in code and other matters. The officers will be chosen Jan. 27 at Asheville, N. C. Charlotte, N. C. has been selected for headquarters, and offices have been opened there.

T. R. Durham

•

40% Curtailment Aids Hosiery

Three weeks' operation of the 40% curtailment order, promulgated last month by the Hosiery Code Authority, found the hosiery industry generally adjusted to the modified schedule. The order was issued by the NRA at the request of the Hosiery Authority; it became effective Dec. 18, and evoked a flood of protests from manufacturers. These protests, however, simmered down rapidly, and on Dec. 29, Earl Constantine, managing director of the National Association of Hosiery Manufacturers, announced that applications for exemptions had practically ceased. About 60 mills out of a total of 700 in the industry were granted immunity from the order. Of these, four have been granted complete relief, six are exempt to fulfill Government contracts and 50 have been given exemption for one or two week periods.

The curtailment order followed a hearing held at Washington on Dec. 11; the ruling stipulated that the industry operate on three-day weeks of two eight-hour shifts for a total period of five weeks, with the possibility of a three-week extension, if conditions warranted. The curtailment was criticized by many small mills as drastic and unjust. However, industry leaders as a whole hailed the move as beneficial.

•

See Volume Aim of Hosiery Cut

Competitive activity among hosiery mills for increased sale of higher-gauge numbers may be one of the features of the spring season. This is the interpretation placed by some market observers on the downward trend of prices on finer merchandise, which was precipitated by Julius Kayser & Co., in a reduction announced in late December; the reduction has since been duplicated by several other important companies. Prices of the finer gauge hosiery lines are now from 50c to $2 below fall levels. The cut did not stimulate buying.

A reduction of 75c. on wholesalers' price for four- and seven-thread 42-gauge hosiery for spring, was announced Jan 3 by Berkshire Knitting Mills; $5.75 is the new price. The two low-end retail numbers are now $6.25.

Prices of 42-gauge hosiery show little variation from fall. The decision of Kayser and other firms to continue $7.25 as base price on this line for 4- and 7-thread has helped to hold the market steady. Hosiery buying during December showed its normal holiday decline, and the first week of the new year was equally quiet, but mills looked for a pick-up the latter part of the month.

•

Control Arranged for Ringless Hosiery

The various applicants for patents on ringless full-fashioned hosiery attachments and fabric have been rounded up by the Textile Patents Corp., Fidelity-Philadelphia Building, Philadelphia, and such patents as are granted will become the property of the corporation. Licenses will be issued to hosiery mills probably on the basis of a royalty of 10c. per dozen. Patents have been applied for by I. C. Eberly (Oakbrook Hosiery Mills), F. O. Pfingst (Greensboro Full-Fashioned Hosiery Mills), Charles Kaufman (Julius Kayser & Co.), Paul Krenkel, Apex Hosiery Co., Berkshire Knitting Mills, Meinig Hosiery Co., Mock Judson Voehringer Co., and Textile Machine Works. The latter will be given authority to manufacture the necessary attachments. Some 40 to 50 mills have already installed at least a small amount of ringless equipment. The Gotham Silk Hosiery Co., which fought the Textile Patents Corp. on the non-run development, is said to be developing a ringless stocking independently.

Hosiery in cellophane-wrapped cylinders is being featured by H. C. Aberle Co., Philadelphia. The slogan "Keynotes of Smartness" is used and the musical motif is interestingly exploited in a novel package. The box is designed to suggest an organ, of which the pipes are the rolls of hosiery. They are packed three and six pairs to the box. Colors are easily seen without unpacking. The cellophane tube is called "Aberlepak" and the contents is guaranteed perfect.

Problems which the sponsors of ringless hosiery are endeavoring to overcome include a tendency of certain mills to employ cheaper silk, which largely nullifies the quality advantage of ringless; difficulty in maintaining a profitable price; increased number of press-offs; lower production; drying out of silk during knitting, because of longer exposure to air (a greater hygroscopic property is required in the silk); higher skill requirements, meaning higher wages; difficulty of unraveling imperfect hose; differences in tension between the three threads; difficulty in operating sufficient carriers for desired heel; and greater likelihood of faulty adjustment of machine. It is expected that a large number of these difficulties will be eliminated shortly, and against the others is of course the important reduction in seconds. Undesirable trade practices will be controlled by the license agreements. There is a strong feeling in the trade that ringless hosiery will soon become the standard type.

•

5% Hosiery Wage Raise

Negotiations to put into effect the 5% wage increase for hosiery workers which has been ordered by the National Labor Board, are now under way. The board's order, issued Dec. 15, provided that members of the Full-Fashioned Hosiery Manufacturers of America make the increase retroactive to Nov. 15.

•

Outerwear Code Now in Effect

With the code of the knitted outerwear formally in effect as of Jan. 1, the National Knitted Outerwear Association has completed its plans for selection of the industry's representatives on the Knitted Outerwear Code Authority.

August Egerer, S. Augstein & Co., association president, was named authority chairman Jan. 8. The code provides:

Minimum wage of 35c hourly in the Northern, and 32½c hourly in the Southern States; an eight-hour day, 40-hour week for employes, except in cases of one shift, when the employes may work 9 hours on a 48-hour week; code permits two shifts of 40-hours each for productive machinery (knitting, winding, pressing and fabric finishing); other machinery one shift. During two periods of one month each 48-hour shifts are permissible.

Establishment of uniform costs, elimination of consignment selling, provisions against misbranding, returns, secret rebates and other objectionable practices are included in clause on trade practices.

Temporarily, code exempts manufacturers of infants' and children's outerwear, pending a decision as to what code this group properly comes under.

•

Knitting Mill News

McDonough (Ga.) **Hosiery Mills** have approved plans for new one-story mill unit, 50x75 ft. Award for structural steel framing has been let to the Austin Brothers Bridge Co., Atlanta, Ga. New structure will cost $18,000, with equipment.

Amazon Knitting Co., Muskegon, Mich., has work under way on new one-story addition. General building contract was let to Muskegon Construction Co.

Arrow Silk Hosiery Co., Inc., Irvington, N. J., receivership has been terminated by the Court of Chancery. Final distribution of funds has been made, general creditors securing about 10%.

Ballston (N. Y.) **Knitting Co.** has completed addition to its branch mill which will provide several thousand square feet of manufacturing space.

Atlanta Knitting Mills, Brooklyn, N. Y., began operations in the plant formerly Union Mills at Catskill, N. Y.

Eagle Beef Cloth Co., Brooklyn, N. Y., has set up a plant at 315 Christopher Ave., for the manufacture of knitted fabric for meat packers. L. Levine is in charge.

Janome Rayon Corp., Brooklyn, N. Y., which sold its knitting equipment to Tubize-Chatillon Corp., will set up a dyeing and finishing plant at Newburgh, N. Y., it is understood.

Sunglo Knitting Mills, Inc., Brooklyn, N. Y., have been organized with capital of $10,000, to operate a local mill by Harry and Edward Schnur.

Brookside Mfg. Co., Chatham, N. Y., has plans under way for construction of a new plant for production of knit goods.

Kedron Knitting Mills, South Woodstock, N. Y., were destroyed by fire on Dec. 18 with loss of $12,000.

Augusta Knitting Corp., Utica, N. Y., is moving this month to new location at 700 Broad St. Plant will be arranged so that cutting, finishing, folding, pressing and boxing will be done in one continuous series of operations.

Waterville (N. Y.) **Textile Mills** have awarded contract for erection of a two-story addition to its main mill building.

Granite Hosiery Mills, Granite Falls, N. C., were destroyed by fire recently at an estimated loss of $40,000.

Elizabeth James Mills, Marion, N. C., recently began installation of machinery costing over $50,000 for replacement.

Belle Knitting Co., Lebanon, Pa., has acquired space in Holtzman Building and will install machines for knitted piece goods. The firm operates three other plants in Lebanon.

E. C. Tremblay, Quebec City, Quebec, has opened a hosiery mill, which now has ten circular machines.

Ideal Knitting Co. has been formed in Montreal, Quebec, by R. Filtz recently of Regent Knitting Mills.

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TEXTILE WORLD'S

Processing Digest

A FASCINATING vision of possibilities looms in connection with the use of infra-red photography, which was referred to in last month's issue of TEXTILE WORLD.

As suggested then, one of its possible uses is in the selection of dye-stuffs for application to fabrics intended for summer wear. It was pointed out as probable that a dyeing which reflects heat rays, and therefore gives an infra-red photograph of light shade, should result in a cooler fabric than a dyeing which absorbs heat rays and consequently gives an infra-red photograph of darker shade. This relationship has no reference to the depth of the shades as they appear to the eye, as some black dyeings actually approach white in reflective power for heat rays.

The promotion of properly dyed fibers for summer wear may be utilized by some wide-awake individual mill. More important still, it is the type of work which requires further study and development—and consequently would seem to warrant attention by both sellers and consumers of dyes.—*Editor.*

Improved Tone In Silk Dyeing Field

Leaders in the dyeing and printing industry reported an improved tone in the market following approval of the code of fair competition for the rayon and silk dyeing and printing industry. The code was approved Dec. 21, by President Roosevelt, and became effective Dec. 25. Robert P. Stevens, of J. P. Stevens Co., has been appointed Government representative on the code authority of this industry. At a meeting of the Institute of Dyers & Printers, held Dec. 27, in New York, first steps were taken in setting up machinery for the enforcement of the code. Authorization of an open price association under the authority of the code body and establishment of a central claims bureau were announced.

•

Cotton Printers Determined to Raise Prices

Contending that current prices for printing cotton fabrics do not allow reasonable profit to printers, various printers' organizations are considering a program of drastic curtailment with the purpose of strengthening the market situation. The industry is being sounded on this question and action will be based on the result of this inquiry. Among the various proposals heard is one that printing machines be limited to a 30-hr. week, in order to bring prices up to a point where fair profit can be made. Interest centers chiefly on the percale printing situation, which is declared to be the weakest as regards allowing for adequate margin. Plans for pegging prices at higher levels also are being considered.

Meanwhile, however, the code authority for the cotton textile industry, under which cotton printers operate, has issued an order directing that during the current month printing machinery shall not operate for more than 75% of the hours otherwise permitted by the cotton code. Code authority officials are hopeful that this step may help to remedy the situation.

•

Dyeing and Printing Salesmen Elect Officers

Charles Fried, sales manager for the Reliance Piece Dye Works, was elected president of the Salesmen's Association of the Dyeing & Printing Industry, at the annual meeting held last month in New York. Mr. Fried was formerly secretary of the association. Other officers elected were: Jack Grael, of the Milton Dyeing & Printing Co., first vice-president; Harry Borman, of the United Textile Print Works, second vice-president; Al Schroeder, of Imhof-Berg, treasurer; Sam Klapper, secretary; and Arthur Weisberg, sergeant-at-arms.

•

Engravers File Code

A proposed basic code of fair competition for the textile print roller engraving industry was filed with the National Recovery Administration at Washington last month by the Master Engravers' Guild. This organization claimed to represent 65% of the industry. An NRA statement announced that the code in its present form "merely reflects the proposal of the industry and is not to be regarded as having received the approval of the Administration."

•

Court Rules Re-dyeing at Customer's Risk

The principle that re-dyes of piece goods are at the customer's risk is viewed as established in a decision handed down by the New York State Court of Appeals. The purchaser of the piece goods had contended that the goods, sent back for re-dyeing, were damaged by defective work on the part of the dyer. The dyer, as defendant, contended that all re-dyeing was at customer's risk and introduced invoices to substantiate this claim. The State Supreme Court found for the defendant, the Appellate Division affirmed this decision, and last month the Court of Appeals denied a motion by the plaintiff for permission to appeal.

•

Textile Designs Produced With Synthetic Glass

Development of a process which permits the application of colored glass designs to fabrics through the use of a so-called synthetic glass, thus eliminating laborious handwork, is described in press reports from London. Luster Printers, Ltd., of Manchester, England, is stated to be the owner of the invention and it is understood this company is now ready to begin commercial manufacture. Use of the synthetic glass, it is asserted, gives the fabric the appearance of a diamond-studded material; it is also stated that the fabric can be washed and ironed without damage to the design.

•

Water-Proofing Code Criticized

Dangers of overlapping jurisdiction in codes was emphasized by critics of the code of fair competition for the sanitary and water-proofing specialties manufacturing industry, when this code came up for its public hearing in Washington, D. C. The hearing was presided over by Assistant Deputy Administrator Dodge, who read into the record a letter from the proofers and backers division of the Rubber Manufacturers' Association, protesting that the code definition includes them and asking that it be modified, as they came under other codes. The protest stated also that this division of the rubber association comprised the largest producers of the waterproof elements which are the base of the products manufactured by the sanitary and waterproofing specialties industry.

Anti-Crease Linens In Experimental Stage

Experiments in the application of the anti-crease process to both lightweight and heavy linens are being conducted by the Tootal Broadhurst Lee Co., Ltd., Manchester, England. It is believed that the process has greater immediate promise in the fine linen fabric field and the lighter weight dress fabrics than in the linens used for men's suiting. Numerous problems remain to be solved before the anti-crease method may be used for the men's wear fabrics, it is indicated, but the chemists are hopeful of progress in this direction shortly.

•

Re-lubricating Cotton Fibers

Investigations conducted jointly by the Glycol Products Co. of Brooklyn, N. Y., and the Textile Chemistry and Dyeing Laboratories of the Textile School, Alabama Polytechnic Institute, indicate that Aquaresin GM, one of the glycol bori-borates, is of value in the lubrication of cotton and allied fibers. Results of the research are described in a report just issued. The possibilities offered by the re-lubrication of raw cotton stock which has been carried through the vat and sulphur dyeing processes are emphasized. Aquaresin GM is said to have the following advantages: Gives waxiness and high resiliency of raw cotton without sticky feel; restores original moisture content of raw stock to "re-lubricated" cotton; reduces amount of fly present in spinning and carding operations; lowers fiber breakage by increased internal and external lubrication of fibers; is non-gummy and non-corrosive when applied to the fiber.

•

Cadgene Defends Prices for Finishing Acetates

Answering criticisms made by manufacturers of cellulose acetate yarns regarding prices of finishing acetate piece goods, Dr. E. Cadgene, president of Lyons Piece Dye Works, has made a statement defending the prevailing prices. Present costs for this work would merit even higher prices than are now charged, he contends, and he asserted that examination of the financial status of fine-goods finishing firms supports this claim. Most of these firms are losing money at present, according to Dr. Cadgene.

•

Trubenize Process Fuses Ply Fabrics

A new process which is said to give the appearance of starching to collars and dress shirts, while eliminating stiffness, has been developed by the Trubenizing Process Co., of New York. The treatment, it is stated, fuses the three plys of a collar into a unit which holds its form without starch. The processors add that the method does not affect the appearance or structure of the fabric, that the processed material will not wilt under perspiration, and that the goods will not wrinkle either under wear or ironing. Extension of the process to other ply fabrics is believed to be feasible.

•

Textile Consultants Elect Officers

At a meeting held Jan. 10, in New York, the Association of Textile Laboratories voted to change the name to Association of Textile Laboratories and Technologists. The following officers were elected for 1-yr. terms: president, J. J. Reutlinger; treasurer, H. Levine; secretary, Lillian Edgerton. The executive committee is composed of these officers, together with Dr. F. X. Harold and Ernest Barber.

•

New Dyestuffs

General Dyestuff Corp. announces the following new products:

Fast Orange Salt RD, a fast color salt, which in conjunction with the Naphtols of the AS range, produces reddish orange shades of excellent fastness to washing, very good fastness to boiling soda, very good to excellent fastness to chlorine, and good to very good fastness to light.

Variamine Blue Salt FG, a fast color salt producing clearer and in some cases also more greenish blue shades than Variamine Blue Salt B. On Naphtol AS-GR the new product produces a bright bluish green which is slightly yellower than the green obtained with Fast Blue BB Base. It is suitable for dyeing and direct, discharge, and resist printing.

Celliton Fast Black GN Powder, a dyestuff for cellulose acetate giving a greenish black shade of better fastness to light than that of Celliton Fast Black G, which it resembles in its other fastness properties. This product is not recommended for direct and discharge printing.

Rapidazol Black B, a stable developing dyestuff in powder form for textile printing; it produces a deep black of very good fastness to washing and boiling, good fastness to chlorine, and fairly good fastness to light on cotton and rayon.

•

Finishing Plant News

Lewiston (Me.) **Bleachery & Dye Works Corp.** has been merged with its parent company, the Pepperell Mfg. Co. This move will make no change in the activity or manner of management of the Lewiston plant but will eliminate some duplication of administration.

Crystal Springs Bleaching & Dyeing Co., Thwaites, Mass., has been ordered sold at public auction Jan. 9 by Charles P. Ryan, Fall River, Mass., referee in bankruptcy. The plant is appraised at $400,000. High bid for the plant as a whole was $25,700 offered by Mrs. Thwaites, wife of John Thwaites, former general manager.

Synthetic Fabrics Dyeing & Printing Co., Paterson, N. J., care of Emanuel Shavick, 140 Market St., recently incorporated, plans operation of local textile print and dye works.

Southern Mercerizing Co., Tryon, N. C., has been incorporated to engage in the manufacture of all kinds of textiles. Incorporators are: F. P. Bacon, W. C. Ward and Douglas S. Blois, all of Tryon.

Union Bleachery, Greenville, S. C., awarded employes of long standing at a special ceremony held Dec. 21. There are eight workers who have been with the company 25 years or longer; ten in service 20 years or longer; 13 there 15 years or longer and 54 from 10 to 15 years. Gold medals were given employes with the longest service, while the others received gold pins.

PROCESSING IN THIS ISSUE

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QUOTATIONS

At close of business, Jan. 2, 1934

Prices cover average qualities unless otherwise stated.

Cotton Goods

	*Jan. 2	*Dec. 1	Jan. 3 1933
PRINT CLOTHS			
27 -in., 64x60, 7.60	4⅜	4⅜	2½
38½-in., 64x60, 5.35	6⅛	6⅛	3⅜
39 -in., 68x72, 4.75	7⅛	7⅛	3¼
39 -in., 72x76, 4.25	8¼	8¼	3½
39 -in., 80x80, 4.00	9⅛	9	4⅛
BROWN SHEETINGS			
36-in., 56x60, 4.00	7¼	7⅜	3⅜
36-in., 48x48, 5.00	5⅜	5⅜	2⅜
37-in., 48x48, 4.00	6⅛	6⅛	3⅛
MISCELLANEOUS			
Drills, 37-in., 3 yd.	9¼	9¼	4¾
Denims, 2.20	15½	15½	9
Tickings, 8 oz.	18½	18½	11
Standard prints	7	7	6

*Tax included.

Cotton Waste

Peeler comber	11.50c
Peeler strip	10.50c
White spooler (single)	5.50c

Cotton Prices

Spot Cotton at:	Jan. 2	Dec. 1	For Month High	For Month Low	1932 Jan. 3
New York	10.50	10.20	10.35	10.00	6.10
New Orleans	10.35	9.85	10.14	8.89	5.90
Liverpool	5.39	5.15	5.37	5.15	5.26

FLUCTUATIONS OF FUTURES

	Closed Jan. 2	For Month High	For Month Low	Closed Dec. 1	Net Change
Jan.	10.28	10.14	9.82	9.97	+0.31
Feb.	10.35	10.20	9.90	10.03	+0.32
Mar.	10.42	10.26	9.95	10.10	+0.32
April	10.49	10.34	10.04	10.16	+0.33
May	10.58	10.44	10.11	10.22	+0.36
June	10.64	10.50	10.18	10.29	+0.35
July	10.72	10.58	10.25	10.36	+0.36
Oct.	10.92	10.75	10.43	10.56	+0.36
Dec.	11.07	10.90	.....	.....	.....

AVERAGE PRICE JUNE-JULY SHIPMENT HARD WESTERN COTTON

F.o.b. New England

	Middling	St. Middling
1⅛-in.	13.19	14.42
1 3/16-in.	14.42	15.92
1¼-in.	17.42	19.42

Based on March 10.42

FOREIGN COTTONS

Alexandria Exchange, Dec. 1

January, Sak.	14.02
February Uppers	10.66
Nov.-Dec. Shipment c.i.f. Boston (Tariff not included)	
Medium Sak.	25.70
Medium Uppers	21.85
(By Anderson, Clayton & Co.)	
India Rough, Calcutta Camilla	10.75
China Tientsin No. 1	13.00

Quotations on cotton cloth and cotton yarn as given on this page include the cotton processing tax. Where figures for dates earlier than Aug. 1, 1933, are given for comparison, such figures of course do not include this tax.

Cotton Yarn (Nominal)

(Tax Added)

CARDED (Average Quality)

Double Carded 2c—4c., higher according to quality.

SINGLE SKEINS OF TUBES (Warp Twist)

4s to 8s	$0.28	20s	$0.32
10s	– .28½	24s	– .34½
12s	– .29	26s	– .35½
16s	– .30	30s	– .37½

TWO-PLY SKEINS AND TUBES

8s-2	$0.28½	20s-2	$0.32
10s-2	– .29½	24s-2	– .35½
14s-2	– .30½	30s-2	– .38
16s-2	– .31	40s-2	– .47½

SINGLE WARPS

10s	$0.29	20s	$0.31
14s	– .30	24s	– .34½
16s	– .30½	30s	– .38

TWO-PLY WARPS

8s-2	$0.29½	20s-2	$0.32½
10s-2	– .30	24s-2	– .35½
14s-2	– .31	30s-2	– .38½
16s-2	– .31½	40s-2 ordin.	– .48½

HOSIERY CONES (Frame Spun)

8s	$0.28	18s	$0.30½
10s	– .28½	20s	– .31½
12s	– .29	22s	– .32
14s	– .29½	24s	– .34½
16s	– .30	26s	– .35½

COMBED PEELER (Average Quality) TWO-PLY — (Knitting Twist) Cones

20s-2	$0.40	50s-2	$0.55
30s-2	– .45	60s-2	– .61
40s-2	– .51	80s-2	– .81

WARPS, SKEINS AND CONES TWO-PLY — (Warp Twist)

20s-2	$0.41	50s-2	$0.57
30s-2	– .46	60s-2	– .63
36s-2	– .49	70s-2	– .73
40s-2	– .52	80s-2	– .84

SINGLES

14s	$0.37	38s	$0.49
20s	– .40	40s	– .50
28s	– .42	50s	– .55
30s	– .43	60s	– .62

MERCERIZED CONES — (Combed, Ungassed)

30s-2	$0.56	60s-2	$0.77
40s-2	– .61	80s-2	1.02

Raw Silk

Prices Nominal

	13/15 White	20/22 White	20/22 Yellow
Special Grand, 85%	$1.66	$1.45	$1.42
Grand XX, 83%	1.56	1.43	1.40
Special Crack, 81%	1.52	1.41	1.38
Crack XX, 78%	1.47	1.39	1.36
Extra, Extra, 73%	1.44	1.37	1.34
Best Extra, 68%	1.40	.....	.....

RAW SILK EXCHANGE

	Jan. 5	Dec. 1	For Month High	For Month Low	Net Change
January	1.36	1.33½	1.39	1.28½	+0.02½
February	1.36½	1.35½	1.40½	1.29	+0.01
March	1.37	1.36	1.41	1.32	+0.01
April	1.39	1.37½	1.41	1.32	+0.01½
May	1.39½	1.37½	1.42½	1.32	+0.02
June	1.38½	1.37½	1.41	1.32	+0.01
July	1.39	1.37½	1.41	1.32	+0.01½

Silk Yarns

Hosiery tram 5thd. Japan, 85%	$2.30
Hosiery tram, 5thd. crack XX, 78%	2.12½
60/2 spun silk	2.95

RAYON WASTE

Thread (for garnetting)	$0.15

Wool

OHIO, PENNSYLVANIA, ETC. (GREASE)

Fine delne.	$0.35 – $0.36	⅜ blood	$0.42 – $0.43
Fine clthg.	.28 – .29	¼ blood	.41 – .42
⅛ blood	.36 – .37		

TEXAS AND CALIFORNIA (CLEAN)

Texas, 12 months	$0.81 – $0.83
California, Northern	.74 – .77

MONTANA, IDAHO, WYOMING (CLEAN)

Staple fine	$0.86 – $0.87
Staple ½ bld.	.82 – .84
Fine and fine medium (original bag)	.81 – .83
⅜ blood	.81 – .83
¼ blood	.73 – .75

EASTERN SCOURED PULLINGS

A.A.	$0.93 – $0.95	B-Super.	$0.78 – $0.80
A-Super.	.84 – .87	C-Super.	.69 – .71

CARPET WOOL (Nominal)

Aleppo (clean)	$0.19 – $0.22
Sining	.14 – .17
China filling (clean)	.15 – .18

Tops and Noils

TOPS—BOSTON

Fine (64-66s)	$1.16 – $1.17
Half-blood (60-62s)	1.12 – 1.13
Aver. ⅜ blood (56s)	1.06 – 1.07
¼ blood (50s)	.96 – .98

NEW YORK TOP FUTURES

	Closed Jan. 2	For Month High	For Month Low	Closed Dec. 1
January	105.50	106.40	102.40	106.40
February	105.50	106.40	102.60	106.40
March	105.00	107.00	103.00	107.00
April	105.40	107.10	104.00	107.00
June	106.20	107.30	104.20	107.30

TOPS — BRADFORD ENG. (Jan. 2)

Fine (64s)	39½d	⅜ bld. (56s)	28d
½ bld. (60s)	37½d	¼ bld. (50s)	21d

NOILS — BOSTON

Fine	$0.56 – $0.58	⅜ bld.	$0.51 – $0.53
Half bld.	.53 – .55	¼ bld.	.49 – .50

Worsted Yarns

ENGLISH SYSTEM WEAVING

2-20s 44s.	$1.25 – $1.27½	2-36s 58s.	$1.55 – $1.60
2-30s 46s.	1.35 – 1.40	2-40s 60s.	1.65 – 1.67½
2-30s mixes	1.80 – 1.85	2-50s 64s.	1.80 – 1.85

ENGLISH SYSTEM KNITTING

2-20s 44s.	$1.20 – $1.25	2-20s 60s.	$1.45 – $1.50
2-20s-50s.	1.27½ – 1.30	2-20s 64s.	1.50 – 1.55

FRENCH SYSTEM

1-26s 64s.	$1.50 – $1.55	2-40s 64s	
1-30s 64s. warp	1.60 – 1.62½	Zephyrs	$1.75 – $1 77½
		2-50s 66s.	1.90 – 1.95

Domestic Rayon (Skeins)

VISCOSE PROCESS

Denier	Filament	Price	Denier	Filament	Price
50	14	$1.25	150	24–40	$0.65
75	30	1.00	150	60	.70
100	40	.85	300	44	.55
125	36	.72			

NITRO-CELLULOSE PROCESS

Denier	First Qual.	Denier	First Qual.
75	$1.05 – $1.10	150	$0.70
100	.90 – .95	175	.70

ACETATE PROCESS

Denier	Price	Denier	Price
45	$1.40	100	$1.10
60	1.25	120–125	1.05
75	1.15	150	1.00

CUPRAMMONIUM PROCESS (TWISTED)

Denier	Filament	Price	Denier	Filament	Price
30	24	$1.60	100	75	$1.00
75	60	1.20	150	112	.90